NATUR CYMRU

A Review of WILDLIFE in Wales

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- The National Botanic Garden of Wales
- Re-introductions – *help or hindrance?*
- 'Nialwch a pherlau natur
- Private nature reserves
- William Condry – *a tribute*
- Skates & rays around the Welsh coast
- Photographing marine wildlife
- Butterfly Guardians
- Llên y llysiau – *yr afal*
- Coastal change

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A Review of WILDLIFE in Wales

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Golygyddol

Mewn darlith ddiweddar, nododd yr awdur Bill McKibben ei bod yn ymddangos fod gan yr amgylchedd naturiol ran llai pwysig i'w chwarae ym mywydau un genhedlaeth ar ôl y llall. Os yw hyn yn wir, yna mae'n well inni ddarganfod ffyrdd newydd o gyflwyno natur i fywydau ein plant, cyn iddynt gael eu dal mewn byd rhithwir sydd wedi ei amddifadu o hanfodion dynoliaeth.

Mi fyddai'n amhosibl gwahanu bywyd William Condry o'r bywyd gwyllt y cafodd gymaint o bleser yn ei wylio a'i ddisgrifio yn ei waith ysgrifenedig byw a chlir. Roedd ar ei fwyaf cartrefol allan yn y wlad, a dymunai i awyr iach chwythu drwy lyfrau fel ei hunangofiant – *Wildlife, My Life* – sydd allan o brint, gwaetha'r modd. Erys yn bleser parhaus i'r sawl sy'n gyfarwydd ag ef, ac mae'n haeddu cael cynulleidfa newydd. Yn y rhifyn hwn, mae Chris Fuller yn dathlu cyflawniadau a phersonoliaeth y croniclwr natur poblogaidd hwn yng Nghymru.

Mae adroddiad Jan Moseley yn nodi fod natur hefyd yn greiddiol i'r Ardd Fotaneg Genedlaethol. Ymhlith y cyfoeth o fflora naturiol, ceir nifer o rywogaethau o'r tegeirian gwyllt yn gwmni i bum rhywogaeth o ffwng sy'n newydd i Gymru. Mae pathewod yn byw yn y coedwigoedd, ystlumod yn hedfan uwchben y tŷ rhew adeg machlud, ysgyfarnogod yn sboncio yn y dolydd a dyfrgwn yn gorwedd ar lannau'r llynnoedd. Mae'r bioamrywiaeth gwych hwn mewn parcdir hanesyddol yn golygu y gall yr Ardd fod yn gyfrwng ardderchog i ymchwil i gadwraeth yn y dyfodol.

Er gwell neu er gwaeth, mae bywyd gwyllt yn ddibynnol ar weithgareddau pobl, a thirfeddianwyr yn arbennig. Lle nad oes pwysau ar dirfeddianwyr i wneud elw, mae mwy a mwy ohonynt yn dymuno gwneud yr hyn sy'n iawn i fywyd gwyllt ar eu tir, ond maent yn ansicr ynglŷn â'r hyn i'w wneud. Dydy hi byth yn rhwydd a syml. Dywed Julian Jones mewn

Bill Condry – croniclwr a charwr Cymru.

adroddiad fod un prosiect gan yr Ymddiriedolaeth Bywyd Gwyllt wedi cymryd y blaen ac arwain at greu rhwydweithiau o berchnogion o'r un farn, a gwarchodfeydd natur preifat.

Mae cymaint o natur yn guddiedig i'r llygad ac y tu hwnt i'n profiadau. Mwya'i gyd y gallwn ddarganfod am yr hyn sy'n gorwedd o dan y tonnau, lleia'i gyd y bydd yr amgylchedd morol yn cael ei drin fel rhywbeth sydd o'r golwg ac felly o'r meddwl. Mae nifer o erthyglau yn adrodd am yr hyn yr ydym yn ei ddarganfod am yr arfordir a'r môr – goblygiadau prosesau arfordirol ar ddynodiadau cadwraeth, canlyniadau arolygon arforol a thynged rhywogaethau unigol, fel cathod môr.

Mae'r erthyglau hyn, ac eraill, yn dangos nad oes prinder cyfle i bobl ailgysylltu â natur Cymru. A fydd cenhedlaeth newydd o naturiaethwyr yn rhoi cyfaredd arwynebol seiberofod i'r naill ochr, a dewis amgylchedd byw, diriaethol yn ei le? Mae'n obaith gwerthfawr, ac yn un y mae gan *Natur Cymru* ei ran ei hun i'w chwarae ynddo.

James Robertson

Editorial

In a recent lecture, the author Bill McKibben noted that the natural environment seems to play a less important role in the life of each succeeding generation. If this is true, then we had better discover new ways to bring nature into the lives of our children, before they become trapped in a virtual world devoid of the fundamentals of humanity.

It would be impossible to separate William Condry's life from the wildlife which he spent so much of his time observing with delight and describing in his clear, vivid writings. Most at home in the field, he wanted a fresh wind to blow through books such as his autobiographical *Wildlife, My Life*, sadly now out of print. It remains a constant pleasure for those who know it, and deserves to win new audiences. In this issue Chris Fuller celebrates the accomplishments and personality of this much-loved chronicler of nature in Wales.

Nature is also at the heart of the National Botanic Garden, as Jan Moseley reports. Among the rich natural flora, several species of wild orchids accompany five species of fungi new to Wales; while dormice inhabit the woods, bats fly above the icehouse at dusk, hares frolic in the meadows and otters lie up by the lakes. This exceptional biodiversity, in its historic parkland setting, makes the Garden a wonderful springboard for future conservation research.

Wildlife is dependent on the activities of people, especially landowners, and this can be for good or ill. More and more landowners, free from the pressure to make profits, wish to do the right thing for the wildlife on their land, but are not sure what to do. It is never easy or straightforward. One Wildlife Trust project has shown the way, leading to the creation of networks of like-minded owners, and of private nature reserves, as Julian Jones reports.

Photo: Rohan Holt.

Mawddach estuary.

So much of nature lies hidden from view and beyond our experience. The more we can discover about what lives beneath the waves, the less the marine environment will be treated as out of sight, out of mind. Several articles report on what we are finding out about the coast and sea – the implications of coastal processes on conservation designations, the results of marine surveys and the fortunes of individual species, such as skates and rays.

As these and other articles demonstrate, there is no shortage of opportunities for people to be re-connected with Welsh nature. Will a new generation of naturalists put aside the superficial charms of cyberspace, and fall for those of a tangible, living environment? It is a worthwhile hope, and one in which *Natur Cymru* has its own part to play.

James Robertson

Re-introductions – *closing the stable door after the horse has bolted?*

Do re-introductions have anything to offer biodiversity conservation? ***Nigel Ajax-Lewis*** *discusses the dangers of quick-fix solutions, and the questions which need to be asked and answered before this rather drastic course of action is adopted.*

Photo: Ian Carter/English Nature.

Red kites ready to be released.

Great bustard.

Photo: Mike Hammett.

Little egret.

The arrival of organisms, and the expansion and contraction of their ranges, has been a continuous feature of life on the western fringe of Europe since long before our country first got its name. Some prosper, some just survive, and some become extinct. To take our latter-day dinosaurs, the birds, as examples, collared dove and little egret are currently prospering, corn bunting and grey partridge have just about survived, although perhaps not for much longer, while red-backed shrike have gone for good; although climate change could bring about their return.

Re-introducing a species which has become extinct nationally, especially if it is an attractive one, is an option which has become increasingly fashionable in European countries in recent years. Michael Heseltine thought the re-introduction of the sea eagle to Scotland was the pinnacle of his career as Environment Minister. So, for example, pine martens are on the list of proposed re-introductions to England at the moment, although they may be present in very low numbers in northern England, as they are in Wales. Beavers are reported to have been returned to the Kent countryside, and are waiting to be re-introduced to Scotland. A plan is underway to re-introduce great bustards to the plains of southern England after an absence of nearly two hundred years.

Do these re-introductions really address the problems facing our declining wildlife? In a highly developed, but biologically impoverished UK, is nature conservation about providing an amenity for people, or does it serve some deeper purpose, connected with a human need to respect nature and natural processes?

The unnatural progress of the red kite

I will start with the case of the red kite. This spectacular bird of prey, with its forked tail, has survived in Wales as a native and is now prospering. Twenty years ago, just at the point where, as we now know, the Welsh kites were beginning to expand, plans were drawn up to re-introduce kite stock from Spain and Scandinavia to re-populate its former range in England and Scotland.

This re-introduction has been successful; so much so, that I saw a total of seven kites on the short drive between Stokenchurch and Beaconsfield along the M40 recently. Nearly 400 young kites have been released at five locations, and releases are still continuing in Scotland. The population derived from these introductions into England and Scotland is now estimated at 170 breeding pairs. This contrasts with the native Welsh population. Unaided by any artificial boost to its numbers, and located in a limited area not thought to provide optimal habitat for kites, the population stands at an impressive 259 breeding pairs.

The success of the re-introduction raises questions for the native population. What is going to happen when the unique genetic Welsh population, which is now nesting as far afield as our border with the West Midlands, meets and interbreeds with their European cousins advancing in the opposite direction? Will their genetic fitness to live in the Welsh countryside be diluted or destroyed, bringing about a population collapse, as they are over-run by the kites of European origin? Only time will tell, in this UK-wide experiment, but at least one bird from England has been seen – and filmed – feeding at Gigran farm last winter. What is certain is that native kites, having hung on in a few Welsh valleys through the hard times, will now never be able to recover the ground they lost as a result of persecution. I was not counting native kites along that motorway through the Chilterns, and I never will.

The Cornish chough

A similar story might have unfolded for Cornwall's 'national' emblem, the chough. This red-legged and red-beaked crow, an aerial acrobat of the skies around our wilder western coasts, disappeared from Cornwall nearly half a century ago. A Chough Re-introduction Group established itself with the aim of bringing back the chough to Cornish coasts, and planned to bring the first birds back this year. With immaculate timing, wild choughs pre-empted these human efforts by returning by themselves to set up home in Cornwall last year. Cornish nationalists see this as a symbol of the re-emergence of the Cornish nation and are waiting expectantly for the patter of tiny crows-feet. The possessors of the red beaks, showing a sense of avian irony, have left over-zealous conservationists with red faces. Choughs one, conservationists nil.

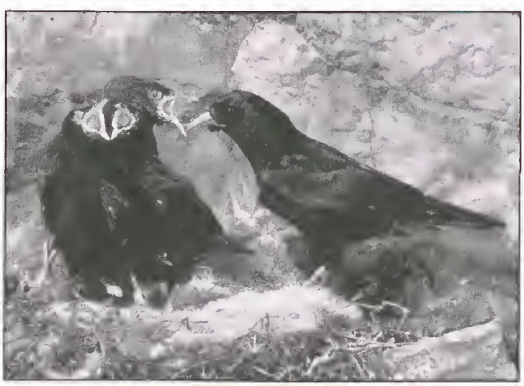


Photo: Mike Hammett

Choughs.

The pit-falls of re-introduction

The UK Biodiversity Action Plan, and section 74 of the CRoW Act 2000, put the restoration or enhancement of a population or habitat at the centre stage of conservation activity. Re-establishment is a synonym for successful re-introduction at the local level, and many of the first editions of Species Action Plans include targets for re-introducing rare species to a specified number of sites by a particular date. This looks like a back-of-the envelope approach to something which actually requires very specialised animal husbandry, or horticultural techniques, and very careful planning. Much of which, we probably do not have at this time.

Here are two examples of what can go wrong:

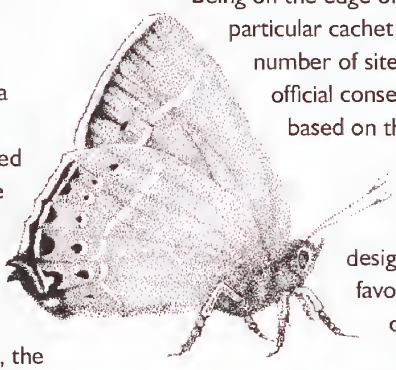
- The rare black hairstreak butterfly was successfully re-introduced to a wood in the east of England. The population prospered. The wood sustains a dormouse population, also a conservation priority. Dormouse nest boxes were put up to help the dormouse population. The resident blue tits had a field day, taking advantage of all the new nest sites which the mammal boxes provided. Blue tit numbers increased and the black hairstreak population collapsed, presumably because of greater predation by the birds.

- The large blue butterfly was the subject of a famous re-introduction, using Scandinavian stock. Having an obligate association with red ants, and thyme as the larval food plant, the butterfly was successfully re-introduced to the West Country. Attempts to re-introduce the same stock to the Cotswolds were a failure. Due to a subtle difference in climate between the two sites, the thyme coming into bud was out of synchrony with the butterflies' emergence, very effectively blocking successful egg laying.

The influence of human activities on the environment has become all too pervasive, so that we can no longer be sure whether the expansion, for example, of the speckled wood butterfly north into areas where it has never been recorded before is the result of human-induced climate change, or a natural fluctuation of its population, perhaps triggered by a genetic change. But population dynamics are a natural process; red squirrels, for example, were both expanding and contracting across various parts of their range long before the introduction of the grey squirrel initiated and then accelerated their decline.

Natural change and human influence

In Wales we have a significant proportion of species which are at the edge of their European range, and prone to these expansions and contractions. Are we going to re-introduce a species whenever it disappears from a locality, even if this may be the result of natural processes? Aren't we going to accept the part that natural processes play any longer, or do we plan to manage species and habitats as if our natural heritage is a cross between a zoo and a good herbaceous border?



Being on the edge of its range had a particular cachet in the past, and a number of sites have received official conservation designation based on this edge of range feature. Our ability to maintain these features within designated sites in favourable conservation condition, with or without re-establishment, must be considered in serious doubt in this period of climatic change.

The history of human introductions of living organisms should make us wary. Historically, the English aristocracy pioneered the intentional introduction of species, formed societies to promote it as a recreational activity, and translocated native British wild plants and animals throughout the former Empire. The effect on the native habitats and indigenous wildlife of the Commonwealth has been catastrophic.

But with this activity has come a final conservation irony. The short-haired bumblebee is almost certainly extinct in the UK at present, but it was one of those species introduced to New Zealand in the nineteenth century. So a project to investigate its habitat requirements in New Zealand has begun with the intention of assessing the suitability of this stock for re-introduction into the UK. Whether, more than a hundred generations later, this population has any of the same genes, habits, or even taste for the British countryside, only the Creator would know.

As Welsh conservationists, we should beware taking part in a second wave of introductions, seemingly benign, but sometimes with uncertain effects on the localities into which they are introduced. Sitting on the western side of an island off the Atlantic coast of continental Europe we had an impoverished wildlife in the first place, before we started destroying it wholesale. One thing we do know is that our wildlife is relatively isolated, and therefore almost certainly genetically distinct. It is that distinction which is our major contribution to global biodiversity conservation, not confusing some poor bumblebees by flying them halfway around the world at great expense. Unlike the red kites, the first otters that lie up under Westminster Bridge in the next few years will be whistling with Welsh accents.

Nigel Ajax-Lewis is Conservation Officer with the South and West Wales Wildlife Trust.

Peryglon ail-gyflwyno

Rhaid i gadwraethwyr yng Nghymru wylio rhag ail-gyflwyno rhywogaethau coll a allai beryglu arbenigrwydd genynnol ein bywyd gwyllt. Mae'r broses hon yn ymddangos yn ateb cyfleus, ond mae'r canlyniadau'n ansicr. Un enghraifft yw'r barcud brodorol, sydd bellach yn ffynnu yng Nghymru tra daethpwyd â barcutiaid tramor i rannau o Loegr a'r Alban. A fydd bridio rhwng y ddau fath yn lleihau gallu genynnol y barcutiad brodorol i fyw yng Nghymru?

Yma, mae llawer o rywogaethau ar ffin eitha' eu tiriogaeth Ewropeaidd. A ydym am ail-gyflwyno rhywogaeth bob tro y bydd yn diflannu, hyd yn oed trwy brosesau naturiol? O gofio hanes dyn yn cyflwyno pethau byw, dylem fod yn ofalus. Bu'r effaith ar gynefinoedd a bywyd gwyllt brodorol yn drychinebus.

'Nialwch *a pherlau natur*

Mae Hypericum linariifolium *yn blanhigyn prin iawn sydd i'w weld mewn rhai lleoedd ar Benrhyn Llŷn. Mae ymdrechion i arbed un o'r goreuon o'r safleoedd hyn wedi methu ar y funud olaf, fel yr esbonia* ***Iwan Edgar.***

Hypericum linariifolium.

Hypericum linariifolium.

Bron i ugain mlynedd yn ôl oedd hi pan oeddwn yn byw yn Nhy'n Ffynnon ar odrau'r Allt Fawr ym Mhwllheli. Rhyw b'nawn Sadwrn aethom ati i glirio 'nialwch oedd wedi ei daflu wrth ochr y tŷ a'i luchio i sgip. Roedd y sothach yn hanner llenwi'r ffynnon oedd wedi rhoi enw i'r tŷ. Mae'r tŷ wrth ochr y lôn fawr am 'Berch, a wal bach rhyngddo a'r pafin, a'r wal honno'n troi'n sgwâr rownd talcen y tŷ at y graig lle mae'r ffynnon. Yr oedd wedi bod yn ffynnon i lawer o dai mewn oes a fu, ond rhyw dir neb oedd y tir o'i chwmpas na thybiwn yn ôl y llanast' nad oedd neb yn malio am y lle. Ond buan y sylweddolais yn wahanol pan ddaeth Bobs 'Rorsedd Bach ataf yn fwg ac yn dân yn addo pob dihenydd arnaf am feddwl clirio'r lle gan mai ei dir ef oedd o, wedi ei brynu ers blynyddoedd gan Stâd Glynllifon ac yr oedd ganddo weithredoedd pwysig i ddangos. Ymhellach, roedd eisiau codi rhes o dai rhwng Tŷ'n Ffynnon a'r Dre-goch (y rhes o dai nes at y dref). Ar ben hynny, yr wythnos ganlynol, mi gefais lythyr pwysig iawn gan Wil Llan (twrnai Bobs) yn y Saesneg cyfreithiol gorau, yn dweud fy mod i wedi tramgwyddo ei gleient wrth glirio'r llanast' ar ei dir. P'run bynnag, gorffen y clirio wnaed, ac ymhen dwy flynedd gwerthasom y tŷ a symud i le arall ym Mhwllheli.

Hypericum

Yn y cyfamser cofiwn i'm diweddar athro bywydeg, Arthur Vaughan Jones ddweud wrthyf flynyddoedd ynghynt ei fod yn tybio yr arferai *Hypericum linariifolium* (neu'r eurinllys meinddail) dyfu ar Allt Fawr. Yr oeddwn yn adnabod y planhigyn ers i Arthur Vaughan ddweud

wrthyf mai dyna oeddwn wedi ei weld ar y Garreg Fechan ym mhen arall y dref mor bell yn ôl â 1970. Yr oeddwn yn byw ar y pryd rhyw ddau gau i ffwrdd o'r fan honno. Tra oeddwn yn byw yn Nhŷ'n Ffynnon mi fûm unwaith neu ddwy'n chwilio ar hyd yr Allt am yr *Hypericum*, ond yn gwbl ofer gan nad oedd hanes ohono.

Flynyddoedd wedyn, tua 10 mlynedd dda yn ôl bellach, digwyddwn fod yng ngardd tŷ ar yr Allt a chraig yn y cefn a gweld *Asplenium obovatum* yno (*Asplenium billotti* oedd yr enw ar y pryd ac efallai mai billotti fydd eto ran hynny). Gan fod hon yn rhedynen lled anghyffredin a minnau heb sylwi arni o'r blaen ym Mhwllheli euthum i'r drafferth i chwilio a oedd rhagor ohoni ar yr Allt. Fel y digwyddai, yr oedd tipyn ohoni mewn cilfachau yn y graig, ac eithin yn cau amdani mewn mannau. Yn wir lle difrifol i chwilota yw rhai rhannau o'r Allt Fawr gydag eithin yn uwch na phen weithiau, nes bod rhywun yn bigiadau byw a chyda llond esgidiau o ddrain marw eithin.

Briweg y cerrig.

Cyfoeth yr Allt Fawr

Wrth fustachu trwy'r eithin trawais ar lecyn creigiog a gweld yno wiber fawr frown yn gorfedd yn llonydd. Arhosodd am fymryn cyn i dwrw fy symud ei dychryn. Ar ôl sbïo arni'n mynd, beth welwn yn tyfu lle bu'n gorwedd ond un planhigyn *Hypericum*, (heb fod yn ei flodau gan ei bod yn hydref). Rhoddais wybod i eraill i mi ei ddarganfod ac fe chwiliodd sawl un am ragor o blanhigion. Daeth mwy i'r golwg – lawer ohonynt yn rhai eiddil iawn o orfod cystadlu â'r eithin, (*Ulex europaeus* yn yr achos hwnnw – er bod mannau eraill o'r Allt lle mae *Ulex gallii* yn drech). Gwelwyd yr *Hypericum* mewn tua thri neu bedwar o fannau. Fel y disgwylid, roeddynt oll yn wynebu'r de fel yn y safle arall ym Mhwllheli, gyda chyfuniad nid annisgwyl o blanhigion o'u cwmpas – clefryn (*Jasione montana*), grug mawr (*Erica cinerea*), briweg y cerrig (*Sedum anglicum*) a throed yr aderyn (*Ornithopus perpusillus*) yn y lleoedd nad oeddynt wedi eu trechu gan eithin, (mae'r nionyn gwyllt, *Allium vineale*, ar y Garreg Fechan hefyd).

Mynd a dod

Planhigyn digon anwadal yw'r *Hypericum* hwn. Sawl blwyddyn tybiais iddo drengi yn ei safle ar y Garreg Fechan pan ddaeth sychder mwy nag arfer yn yr haf. Ond ymhen y rhawg deuai yn ôl – fel arfer yr hen blanhigion yn marw a rhai newydd yn cychwyn o had. Ymddengys yn blanhigyn lled fyrhoedlog weithiau, fel planhigyn unflwydd. Arferai dyfu yn y gwellt ar ben y Garreg Fechan yn nechrau y 1970au. Diflannodd o'r fan honno, ond bu mwy ohono yn is i lawr y graig, wedi manteisio ar y golau ychwanegol a ddaeth yno wedi i rai o'r coed a oedd o'u blaen gael eu torri wrth ledu'r lôn. Hefyd yma nid oes cymaint o fygythiad oddi wrth yr eithin. Yn ddiamau, cael ei fygu gan eithin yw'r broblem bennaf ar yr Allt Fawr. Byddai'r Allt yn cael ei goddeithio'n amlach ers talwm neu mi fyddai plant yn rhoi darnau ohoni ar dân a chreu cryn gynnwrf a galw injan dân rhag i rai o'r tai wrth ei godrau gael eu llosgi. Siawns y byddai hynny wedi bod yn help i roi mwy o olau'r haul i'r *Hypericum*. Er mwyn cadw'r planihigyn mae'n rhaid cadw golwg ar reolaeth eithin ar y safle. Bu peth ymdrech i wneud hynny ar un achlysur ar yr Allt Fawr ar ôl i ni gael hyd iddo ond bellach ymddengys yr anghofiwyd hynny.

Ar gorn ei ddarganfod yn 1991 ar yr Allt Fawr, chwiliwyd mewn llefydd eraill addawol yn yr ardal. Yn dilyn hynny daeth i'r golwg mewn un safle newydd ger Porthmadog, eto ar lethr yn wynebu'r de. Diflannodd y planhigyn o nifer o safleodd yn ystod y ganrif a aeth heibio. O ganlyniad, y rhain oedd yr unig safleoedd a oedd ar ôl yng Nghymru, a'r safleoedd mwyaf gogleddol yn y byd ar ôl ei ddiflaniad o Ynys Môn ryw dro yn y ganrif ddiwethaf. Fodd bynnag, y llynedd daeth i'r golwg ym Mhenfro. Disgwyliadwy yn wir fyddai iddo fod yn y fan honno, ond ymddengys ei fod mewn poblogaeth amhur wedi croesi â *Hypericum humifusum*.*

Angysondeb llywodraeth leol

Y llynedd hefyd dyma weld fod Mr Robert Lloyd Roberts (Bobs 'Rorsedd Bach) wedi penderfynu rhoi'r Allt Fawr ar werth. Tybiais y byddai'n dda o beth pe gellid ei phrynu i'w hamddiffyn ac i'w rheoli'n well. Llwyddais i gael cydweithrediad y Cyngor Cefn Gwlad a fyddai'n cyfrannu tuag at y pryniant, dangosodd yr Ymddiriedolaeth Genedlaethol ddiddordeb, a chefais gydweithrediad y Cyngor Tref i gyfrannu. I symud y mater yn ei flaen penderfynodd y Cyngor Tref dalu am brisiad annibynnol o'r safle. Rhaid oedd cael hwnnw i gyfiawnhau gwario o bwrs cyhoeddus.

Daeth y prisiad. Yr oedd un prisiad fel tir amaethyddol, un arall fel tir a pheth gobaith datblygu. Ond ysywaeth yr oedd bwlch mawr rhwng y prisiad, a'r pris a geisid gan y gwerthwr. Nid oedd un ond tua hanner y llall. Y mae'r llecyn wedi ei ddynodi gan y cyngor yn ei gynllun fframwaith fel ardal warchod y tirlun, a thu allan i derfynau datblygu y dref. Ond mae gwerth dynodiad o'r fath yn gwanio'n sylweddol pan godir byngalos yn yr ardal yn groes i'r canllawiau.

Dyma ran o'r pris y mae torri neu wyro rheolau cynllunio yn ei wneud. Ac ymhellach dyma bris sy'n cael ei dalu am sybsidïau amaethyddol sy'n gwneud tir yn fwy o werth nac ydyw i fod. Clywais hefyd gan arwerthwr bod rhai yn prynu tiroedd gwirioneddol grablyd er mwyn codi ei daliadaeth a chynyddu rhicyn cymorthdaliadau.

Mewn sefyllfa fel hyn nid hawdd yw amddiffyn safleodd a chynefinoedd heb dalu crocbris a hwnnw yn y bôn yn bris sy'n deillio o ynfytrwydd a methiant polisïau cyhoeddus. Felly erys yr Allt ar werth – aeth yr ymdrech i'w phrynu i'r gwellt neu'n hytrach i grombil yr eithin.

Y mae'r llecyn wedi ei ddynodi gan y cyngor yn ei gynllun fframwaith fel ardal warchod y tirlun, a thu allan i derfynau datblygu y dref. Ond mae gwerth dynodiad o'r fath yn gwanio'n sylweddol pan godir byngalos yn yr ardal yn groes i'r canllawiau. Dyma ran o'r pris a delir am dorri neu wyro rheolau cynllunio yn ei wneud.

* Y llynedd hefyd gwelais beth dybiais oedd *Hypericum linariifolium* mewn llecyn arall yn Llŷn, ond diystyrais ef gan weld *Hypericum humifusum* gerllaw. Ond bellach o glywed am yr hyn a gafwyd ym Mhenfro yr wyf yn hanner meddwl y gallai fod yma boblogaeth amhur o *Hypericum linariifolium*. Maes o law eleni efallai y caf gyfle i edrych yn iawn.

Mae **Iwan Edgar** yn ymddiddori mewn planhigion a chynefinoedd rhwng gweithgareddau eraill bywyd.

Pearls in the wilderness

Allt Fawr, near Pwllheli on the Llŷn peninsula, is a wild, largely unmanaged area, the dominant vegetation being gorse and heather. I have searched the hillside for the rare Flax-leaved St John's-wort *Hypericum linariifolium*, which had been recorded there in the past, and have found several sites on Allt Fawr where it grows in south-facing areas which are not too shaded by tall gorse. Gorse clearance could encourage its spread.

It is also found nearby at Garreg Fechan in the more south-facing, open areas where trees have been felled to widen a road. During a more widespread search of this part of Wales I have discovered plants at a new site near Porthmadog, again on a south-facing slope.

Last year a hybridised population (*x H. humifusum*) was recorded in Pembrokeshire and I believe I have found a similar hybridised population at yet another site in Llŷn. This is the northernmost point of the worldwide distribution of Flax-leaved St John's-wort and possibly the only area in Wales where it grows at present.

When Allt Fawr was offered for sale, my efforts to secure its purchase and protection collapsed at the last hurdle. Capital to purchase had been promised by various bodies in order to protect Allt Fawr's special features. Despite being in an area described in local development plans as a landscape protection area and despite being outside the development area, the asking price was too high – far higher than the price suggested by independent valuers – a reflection of the distortion to land prices caused by agricultural subsidies based on land area.

William Condry – *chronicler of nature*

Bill Condry with purple saxifrage on the rocks behind. Photo: Dafydd Davies.

William Condry was a contributor to our predecessor magazine, Nature in Wales, *and would have delighted in its rebirth as* Natur Cymru. *We hope his spirit lives on in these pages. Here* ***Chris Fuller*** *remembers a friend and much loved naturalist.*

Thyme.

Many elegant and moving accounts have been written about William Condry since his remarkable and fruitful life ended at the age of 80 on 30 May 1998. To his friends he was known fondly as Bill. As one of his close friends for some 40 years, I venture to offer here a glimpse into the history and achievements of this much-loved man, blending in a few personal memories, impressions and tributes.

Born in Birmingham, but on St David's Day 1918, it is tempting to believe that fate was beckoning Bill to Wales from the very beginning of his life. From school days onwards he visited Wales, especially with his close and lifelong friend, Harold Wright, with whom he shared his passion for natural history from the start. In a letter to Bill's wife, Penny, in July 1998, Harold declared that Bill would be remembered as Chronicler and Lover of Wales – a few apt words which describe in a nutshell what much of Bill was all about. It was in 1946 that Bill got married and moved to Wales, having a number of homes there before settling in 1959 at Ynys Edwin on the Ceredigion side of his beloved Dyfi estuary. Here Bill taught part-time for some ten years at the private Lapley Grange school (now long closed), having previously graduated in French, Latin and History and gained a Diploma in Education at Birmingham University. With no academic training in

Nature Wastes *Nothing*

"When I recently fixed a nest-box on one of our bedroom window-ledges I thought its most likely occupant would be a blue tit. Sure enough, a blue tit was popping in and out of it within minutes. But next day a male pied flycatcher arrived after his long migration from Africa. He showed an immediate interest in this desirable residence and very soon the blue tit was evicted.

Then along came another migrant, this time a redstart, and he too decided that this box was the perfect answer to the housing shortage. For the next two days there was many a colourful scuttle until the flycatcher retired from the contest. So last week the female redstart was busy building the foundations of a nest in the box with countless beakfuls of moss, wool and dried grass.

Meanwhile we experienced one of life's little tragedies. A garden warbler flew into one of our window panes and was killed. It depressed us to think that this little bird had flown 2000 miles to fill our garden with song only to die almost as soon as he got here. His body lay in the garden all day and was found that night by a rat or some other scavenger. All that remained next day was a scatter of feathers. That was just a week ago. This morning I went to see how the redstart's nest was getting on in the box on the window-ledge. It contained four blue eggs neatly cradled amongst the brown feathers of a garden warbler. In nature nothing is wasted."

from *A Welsh Country Diary* by W.M. Condry

Photo: Peter Hope Jones.

Bill Condry at the south end hide on his beloved Ynys Enlli.

natural history, Bill's knowledge of that subject was all self-taught, which is remarkable, but so often the case with many of our very best field naturalists.

After finishing his teaching career, Bill devoted all his time to the world of Nature, and became one of the most eminent of naturalists and writers in Britain, as well as one of the father figures of conservation. His contribution to the pioneering days of nature conservation in Wales was enormous, and we shall probably never know the full extent of his quiet, yet persuasive, influence in bringing about the protection of so many natural treasures in the Principality. For example, although somewhat sceptical of things official and political, he served on the Wales Committee of the Nature Conservancy for a spell in the 1960s. Here he pressed for the safeguarding of important sites as National Nature Reserves (such as Cors Fochno, near Borth) and for the protection of scarce species like the red kite. Indeed, he was one of the founders of the Kite Committee in 1949, a band of volunteers which steered the successful recovery of the tiny British population of this majestic bird that clung on from near extinction in central Wales. Bill was also a founding member of the Bardsey Island Bird and Field Observatory, and was much involved, from their early days, with the work of both the North Wales Wildlife Trust and the Wildlife Trust-West Wales (and its predecessor bodies). In 1969 Bill became the first warden of

the RSPB's still-expanding Ynys-hir Nature Reserve on the Dyfi estuary, a reserve which owes its creation in no small part to Bill's vision and his influence in the right places. And so one could go on documenting Bill's active involvement with many organisations concerned with the study, recording and protection of Wales's natural heritage.

No account of William Condry would be complete without reference to him as an author. In this sphere he was a quiet giant. In a tribute to him in June 1998, the Daily Telegraph described him as one of the finest British writers on natural history this century. His very special talent was the ability to convey things scientific or technical in plain, understandable and absorbing English – a scarce talent in these days of unintelligible jargon, which unfortunately is becoming as evident in the environmental literature as it is elsewhere nowadays. Bill's writing had the rare ability to enthuse even the non-naturalist – so many people have commented that they have found it difficult to stop reading once they have started. Another notable hallmark of Bill's writings was their originality and authenticity, for they were always based on personal, first hand research and observation. Truth and fact were paramount for Bill, but like most of us, he could also appreciate to the full the emotional, ethical and aesthetic ingredients of the realm of Nature. Bill wrote no less than 14 major books, including two in the famed and prestigious Collins *New Naturalist* Series, namely *The Natural History of Wales* (1981) and *The Snowdonia National Park* (1996),which are probably his two most substantial works. His fascinating autobiography *Wildlife – My Life*, published in 1995, is a must for those wishing to know more about this remarkable naturalist. As if all this was not enough, Bill contributed a Country Diary to the *Guardian* for no less than 41 years (1957-98), the last one appearing on the day he died. He was without doubt one of the finest country diarists this country has seen. A selection of Bill's diaries was published in 1993 by Gomer Press (*Welsh Country Diary*). Bill could turn his hand to less major works too. Like me he was a 'WI husband', and for that privilege he was persuaded to help celebrate the seventieth anniversary of the local Women's Institute by writing a delightful booklet entitled *Wildlife in our Welsh Parish*, published by Eglwysfach WI in 1992, and still available[1]. Bill wrote numerous articles, including contributions to *Country Life* and *The Countryman*, made many broadcasts and was much in demand as a lecturer.

Photo: Peter Hope Jones.

So much for Bill's background and notable achievements, but what else made him so special? Without doubt, his sheer mass of knowledge about most aspects of Welsh natural history struck me as his most extraordinary quality. Bill could be described as an all-rounder of the old school – a breed of naturalist which appears to be dying out as specialisms become the fashion. In addition to natural history, Bill had a concern for the whole breadth of Welsh heritage – to him the landscape, the history and the language were all things to be treasured and cherished. One was always conscious of Bill's quiet modesty and his desire to live a simple life devoid of many of the material things which so many of us find necessary to enrich our lives. He adopted this style because to him the natural world was all important and all embracing, and also because he was acutely aware of the damaging effects that many of our material comforts are having on the health of the planet. In this regard he followed a similar philosophy to that

Photo: Arthur Chater.

Bill Condry with Adrian Fowles and Ian Morgan in 1986.

of the great American naturalist, Henry David Thoreau, whom he admired greatly, and about whom he wrote one of his books. To go on a field trip with Bill was both a joy and an education. I well remember when I and my son, one February day, accompanied him on his annual pilgrimage part way up Cader Idris to see one of his favourite plants, the purple saxifrage. Despite snow showers and a biting wind, Bill's determination and agility encouraged us ever onwards until we found the plant just venturing to flower amongst the rocky crags. Bill's delight at this floral sight was undiminished from one year to the other. Cader Idris was probably his favourite Welsh mountain, and it is fitting that his ashes have been scattered there.

I loved Bill's quiet sense of humour. So often, when I went to see him and Penny, he would jokingly ask if I had come yet again to cheer him up, knowing only too well that soon I would thoroughly depress him with accounts of the latest trials and tribulations facing the task of conservation. But despite being saddened by the worsening plight of the natural world in general, Bill had an air of optimism about him. One of his memorable sayings was "go on your way rejoicing" – which is what he did, always rejoicing in the wonders of Nature and making the most of what life had to offer. Fittingly, Penny put that saying on the front cover of the programme for a celebration of Bill's life, held at Y Tabernacl in Machynlleth on 26 July 1998. At this well attended and moving event, a number of Bill's friends and others came together to pay tribute to him in words intermingled with music and poetry. The spirit of the Chronicler and Lover of Wales was there I feel sure, and far from wishing us sadness, would have wished us, like him, to go on our way rejoicing.

Chris Fuller was the Area Officer for CCW's West Area until his retirement in July 2000. He is currently on the Council of the Montgomeryshire Wildlife Trust and a Trustee of the Shared Earth Trust.

! Copies of *Wildlife in our Welsh Parish* are available at £2.25, including postage. Cheques payable to Eglwysfach WI
Mrs W Fuller
Pandy
Furnace
Machynlleth
SY20 8PJ

Blue tit.

Cronicl wr a Charwr Cymru – Cofio William Condry

Roedd hi fel petai ffawd wedi penderfynu y dylai Bill Condry ddod i Gymru ac yma y bu oddi ar 1946. Fe roddodd ei oes i fyd natur gan ddod yn un o naturiaethwyr ac awduron amlyca' gwledydd Prydain ac yn dad yn y ffydd i gadwraethwyr. Roedd ei ddylanwad yn anferth gyda nifer o gyrff a mudiadau byd natur. Ysgrifennodd 14 llyfr pwysig a cholofnau i *Country Diary'r Guardian* am 41 o flynyddoedd. Yn fwy na dim, roedd yn naturiaethwr cyfan, yn wylaidd a syml ei chwaeth. Roedd mynd i'r maes gydag ef yn addysg a phleser. Er gwaetha'i bryder am ddirywiad byd natur, un o'i hoff ddywediadau oedd "ewch ar eich ffordd yn llawen".

Private Nature Reserves *in Radnorshire*

In his work as Powys Wildlife Sites Officer between 1997 and 1999, ***Julian Jones*** *became aware of the number of high quality areas for wildlife owned and managed by interested individuals who were not conventional farmers. Such people were more than willing to manage their land primarily for wildlife, but were often uncertain as to the best approach and whom to ask for advice.*

Alder.

In May 1999, when I was based at Radnorshire Wildlife Trust, I received a call from the owners of a smallholding near Clyro Hill in south-east Radnorshire. The owners, Penny Hurt and Chris Bruce, had recently purchased a converted longhouse with 15 acres of land – four fields and a patch of ancient semi-natural woodland with a small brook running through the land.

Within the holding there was a good deal of wildlife interest. One of the fields was semi-improved with a number of interesting meadow species: pignut, heath-spotted orchid, harebell, betony and quaking grass. However, another similar and potentially more interesting pasture had been planted by a previous owner with over 400 Christmas trees! Other areas of good quality grassland on the holding had also been planted up with trees, to the detriment of the grassland.

Nearly three years on and thanks to the dedication of the owners, much of the grassland has been restored. Local rare breeds of sheep and Dexter cattle now assist with the management by way of a careful grazing and cutting regime agreed with Radnorshire Wildlife Trust. Also, the ancient woodland – part of which had been felled by a previous owner – has been fenced off and is being allowed to regenerate.

Like many other sites, this particular smallholding lay outside statutorily protected areas such as Sites of Special Scientific Interest (SSSIs) and yet had great potential for helping conserve wildlife. There are also private nature reserve owners with more sizeable blocks. One of these is a 35 acre clear-felled conifer plantation in the far north of Radnorshire, called Pen-y-garreg woods. The woodland is divided into two blocks of 8 and 27 acres, about half a mile apart. Surrounded by a larger Forestry Commission block and pasture, the sites are at over 1,200 feet in places and have a predominantly north-facing aspect.

Originally the owner had intended to re-plant the whole site with broad-leaves, but after discussions with the Wildlife Trust and a couple of meetings with other private nature reserve owners, parts of the site have been allowed to regenerate into wet and dry heathland. Any other wet areas across the site will be left unplanted. The planted areas will consist of tree species, native and non-native: alder buckthorn, hazel, wild cherry, holly, alder, birch, oak and sweet chestnut.

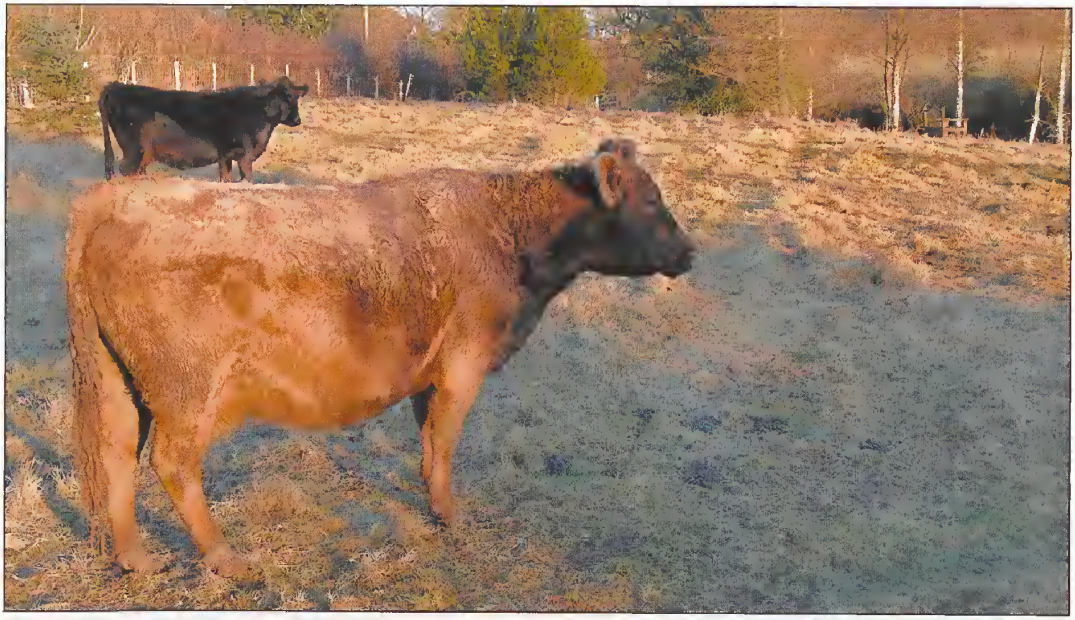
Before: Christmas trees smother the grassland. Photo: Julian Jones.

Through Radnorshire Wildlife Trust, a network of sites is steadily growing in the county and there are now twenty-six holdings which are described as Private Nature Reserves (PNRs) – a term originating from an initiative set up in Somerset (Davies, 1998). In Somerset there are over 142 registered PNRs, covering 567 hectares (1,400 acres) where land is managed primarily for wildlife (Davies, 2001). In Radnorshire, terms of reference have been drafted to outline the aims of the network. These are:

1. To encourage, enhance and restore biodiversity typical of the county.
2. To act as an entirely informal and voluntary network with no joining fee. A Private Nature Reserve is wholly a non-statutory designation and members can withdraw at any time and for whatever reason.
3. Access is by invitation only and entirely at the discretion of the owner/occupier.
4. Applications from PNR owners to join agri-environment schemes such as Tir Gofal will be encouraged.
5. Management of a PNR which enhances or restores its biodiversity and also provides an income for the owner/occupier will be encouraged.

Advice on management of different habitat types and for certain species is sought from Wildlife Trust staff and other members of the network. Two newsletters have now been produced and an open day was held in May of this year to share best practice – this involved visits to two PNRs and a nearby Radnorshire Wildlife Trust reserve. In time it is hoped that skills can be exchanged between PNR owners in a similar way to the Local Exchange Trading Scheme (LETS) whereby an owner with a need for help in treeplanting can then lend a hand helping with another member's haymaking. In this way appropriate management for habitats and species will be encouraged with a net gain for biodiversity.

Of the PNRs currently registered, a quarter of them have priority BAP species occurring, including dormouse, water vole, great crested newt, brown hare and Atlantic salmon. Other species known to use Radnorshire PNRs include barn owl and water shrew. Important habitat types occur on almost all PNRs; running water, unimproved grassland, old orchard, ponds of high conservation value, ancient semi-natural woodland, scrub and even one old arable field margin.



After: careful grazing maintains the grassland.

Photo: Julian Jones.

A recent survey of PNRs in the county has revealed that of the 16 respondents, 271 acres are managed as PNR – the land ranging from 180 to 380 metres in altitude; half the members have woodland, four of the holdings have their own livestock, another seven rent out land for grazing, five have no grazing of any kind. Experience in land management amongst the group ranges from 2 months to thirty years.

There is no doubt that Radnorshire's Private Nature Reserves have a key role in delivering some of the targets set in the Powys Biodiversity Action Plan. There are other people within the county, and indeed the whole of Wales, who manage their land solely for the benefit of habitats and species and it is hoped that through the expansion of this co-ordinated network, Private Nature Reserves will be an important mechanism to link up the fragments of semi-natural habitat across the countryside.

Julian Jones is Conservation Manager with Radnorshire Wildlife Trust.

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Maesyfed yn arwain gyda Gwarchodfeydd Natur Preifat

Mae 26 llecyn ym Maesyfed sy'n Warchodfeydd Natur Preifat – lle mae unigolion brwd yn cynnal eu tir er lles bywyd gwyllt. Mae Ymddiriedolaeth Bywyd Gwyllt Sir Faesyfed yn helpu i ddatblygu'r rhwydwaith, ac mae'r amcanion yn cynnwys annog, gwella ac adfer bioamrywiaeth nodweddiadol. Bydd staff yr Ymddiriedolaeth ac aelodau eraill o'r rhwydwaith yn cynnig cyngor a'r gobaith yw y bydd Gwarchodfeydd Natur Preifat yn datblygu'n ffordd bwysig o gysylltu darnau o gynefinoedd lled-naturiol led-led y wlad.

Butterfly Guardians

Marsh fritillary butterfly. Photo: Alan Barnes.

'Butterfly Guardians' is a Butterfly Conservation initiative established in June 1998 with Environment Wales funding. Here ***Nichola Davies*** *describes some of the achievements of the project over its first three years, and its ambitions for the future.*

Butterflies are great for introducing wildlife to the public. They are charming and beautiful and there are a small number of native species (59) most of which can be identified with relative ease. These qualities make them very accessible and butterflies can therefore help change popular attitudes about the need to conserve invertebrates in general.

The Butterfly Guardians initiative was developed by Butterfly Conservation to provide a practical but enjoyable way for volunteers to learn about butterflies and moths (*Lepidoptera*) while increasing the number of local activists to help with our work in Wales. Volunteers contribute time, energy and fresh perspectives. They offer complementary skills and add value to the work of paid conservation staff. The ultimate aim is a relationship of mutual benefit – volunteers enjoy their involvement and achieve personal fulfilment while progressing the goals of Butterfly Conservation.

Butterfly Guardian training workshops are very popular, with an average of 19 attendees at 37 workshops over 3 years. This high level of attendance is unusual and has revealed a source of previously untapped enthusiasm for *Lepidoptera* conservation in Wales. Introductory workshops are attractive to beginners, and survey events are popular with more proficient volunteers who gain a sense

of satisfaction when they add new records. New discoveries have included records for priority moths such as the black-banded, sandhill rustic and cistus forrester and butterflies such as brown hairstreak, marsh fritillary and large heath.

The great challenge in 'showing off' butterflies and moths to the public in Wales is the weather. Workshops have evolved to accommodate the Welsh rain through a pragmatic, 'hands on' approach to training. Slides and props are used for identification exercises, and site visits demonstrate monitoring and survey techniques while pointing out caterpillar food plants and nectar sources. Volunteers 'have a go' at completing survey and habitat forms and return at the end of the day to ask questions and compile data. County recorders and local expert entomologists are invited to help out at workshops, giving presentations and helping with identification sessions. This enables new recruits to put a face to county recorders and to meet other useful local contacts. They have proved very popular, with the great majority of attendees wishing to attend subsequent events and to become part of an expanding butterfly and moth network.

Photo: Mike Hammett.

Large heath butterfly.

Interest in moths has been as great as that for butterflies. Training in moth identification, and recording and survey techniques for the caterpillar

Photo: Mike Hammett.

Wall butterfly.

stages of priority species has created a generation of newly addicted 'moth-ers'. Moths lend themselves to public events as they can be easy to find (lured by light traps for inspection and release) and are not so affected by poor weather conditions. However, not all are easy to identify and training is vital to gather accurate information for conservation.

Local butterfly and moth groups

Since the project began in June 1998, 232 local events and surveys have been organised by the butterfly and moth groups developed with help from the Butterfly Guardians scheme. This is a phenomenal achievement and demonstrates what can happen by bringing together people with shared interests and enthusiasm, affirming their values and helping them apply new skills. Once sufficient volunteers express an interest, meetings are set up to establish new butterfly and moth groups. Volunteers take on specific roles (such as Volunteer Co-ordinator or Publicity Officer for example) and become key points of contact for those wishing to help with survey and monitoring. Butterfly Conservation's National Action Plan (NAP) for *Lepidoptera* guides volunteer interest towards priority species, and volunteers are encouraged to represent Butterfly Conservation on Local Biodiversity Action Plan (LBAP) steering groups.

Case Study

by **Jan Miller** (Volunteer Organiser, NE Wales)

"I had been an inactive member of Butterfly Conservation for many years when I went to a Butterfly Guardians workshop on endangered Fritillaries at Eyarth Rocks near Ruthin (which has recently become Butterfly Conservation's first reserve in north Wales). I must have ticked the wrong box on the evaluation form, because the next thing I knew, Nichola Davies, Butterfly Conservation's Volunteer Development Officer, was on the telephone saying she needed a Volunteer Organiser for my area. I eventually agreed and Nichola gave me lots of guidance and even came up to north Wales to give me a day's training.

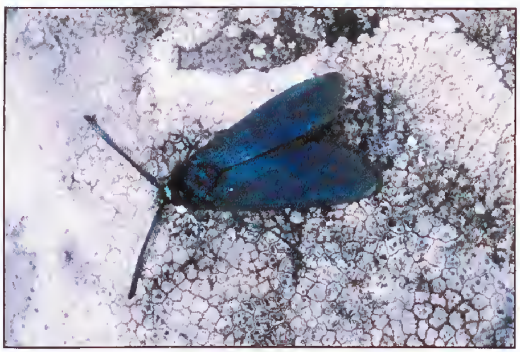

Photo: Ilija Vukomanovic.

Cistus forrester moth.

Despite many family commitments, or perhaps because of them, I found the voluntary work that I increasingly created for myself very rewarding. It gave me something I could do as an escape from life's frustrations. Nichola kept saying it should be fun. I already had a great interest in gardening, and it was fun reading up on food plants needed by different species of butterfly, then growing and propagating them. I sold these plants to increase membership and raise funds for the local branch at gardening shows. Nichola put me in touch with many individuals and organisations with whom I arranged walks, lectures and moth-trapping events. Another keen member, interested in moths, lived at the other end of north Wales. We bounced ideas off each other via e-mail. He used his expertise to make display panels for our show stands (which I put in local libraries during winter), and I collected together other members to help with 6 shows last summer. This led to contact by schools and others who asked for advice, workshops and lectures. With this in mind, I made a successful application for a Millennium Award grant to help local schools, communities and residential homes plant butterfly gardens. Part of the grant is being used to purchase photographic and computer equipment to produce good quality teaching and display materials, which will also benefit the north Wales branch of Butterfly Conservation after the 12-month project ends.

I also took part in two recording schemes last summer, and most recently have been collecting volunteers to clear scrub at Butterfly Conservation's new reserve at Eyarth Rocks. Through the events arranged with local experts, I saw more scarce species last year than in my whole life before.

From what was a reluctant beginning, I now have the satisfaction of seeing the North Wales Branch membership grow by 30%. More people are involved in recording and habitat management projects and I've learned a lot about *Lepidoptera*. The work of Butterfly Conservation is snow-balling in north Wales right now, and all due to the inspiration of the Butterfly Guardians scheme."

Jan Miller can be contacted by e-mail Jan@7wells.org or by phone 01352 711198

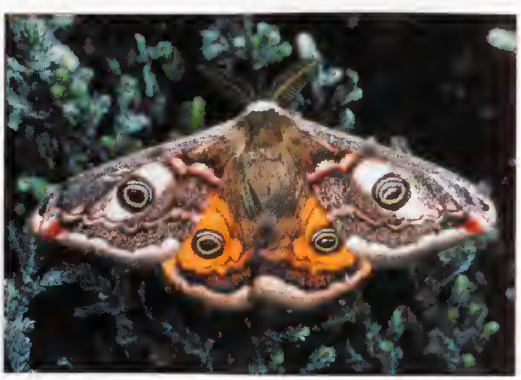

Photo: Mike Hammett.

Emperor moth.

Developing Partnerships

Keen to host butterfly and moth events and highlight their own needs for butterfly and moth work, many conservation and land use organisations have offered free use of venues and staff time. These bodies include Wales branches of UK Conservation groups, County Councils, National Park Authorities, and many other local groups and individuals. The links created are essential to the success and sustainability of the project and to ensure that volunteers are well connected at a local level.

Photo: Mike Hammett.

Brown hairstreak butterfly.

Future Developments

Over the next three years the Butterfly Guardians project aims to:

- recruit and train volunteers within the three National Parks
- secure funding to develop the Butterfly Guardians project in areas not yet targeted (Monmouthshire, Radnorshire and Montgomeryshire)
- provide continued support, guidance and resources for all local groups, branches and volunteers throughout Wales

Butterfly Conservation is now in an even better position to support the work of volunteers in Wales. We have funding from the National Assembly's Environment Development Fund, administered through the National Parks; and two new posts – Conservation Officer (Russel Hobson) and Moth Conservation Officer (Alan Wagstaff), both funded by the CCW.

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Glöynnod yn fyw

Mae tair blynedd gynta' cynllun Ceidwad Glöynnod Byw wedi dangos fod diddordeb mawr mewn glöynnod a gwyfynnod yng Nghymru. Trefnwyd 232 o ddigwyddiadau ac arolygon lleol trwy rwydwaith o ganghennau. Mae'r gwaith yn cynnwys hyfforddi gwirfoddolwyr a chyfrannu at Gynlluniau Gweithredu Bioamrywiaeth Lleol. Cofnodwyd enghreifftiau newydd a bellach mae gwarchodfa löynnod gyntaf Cymru ger Rhuthun.

Dyma nod yr ail dair blynedd:

- denu a hyfforddi gwirfoddolwyr o fewn y tri Pharc Cenedlaethol
- cael arian i ddatblygu'r cynllun mewn ardaloedd newydd fel siroedd Mynwy, Maesyfed a Maldwyn
- cynnig cymorth, arweiniad ac adnoddau i grwpiau ac unigolion.

"Trwy ddigwyddiadau gydag arbenigwyr lleol, mi welais fwy o rywogaethau prin llynedd nag yn ystod gweddill fy mywyd," meddai Jan Miller, Trefnydd Gwirfoddol yng ngogledd Cymru.

Photo: Butterfly Conservation.

Butterfly Guardians.

Underwater photography *around Wales*

Photo: Paul Kay

*Long-spined sea scorpion (*Taurulus bubalis*), north Llŷn.*

Underwater photography provides a window on the hidden world of the sea. One of its outstanding proponents, **Paul Kay**, *explains.*

The marine environment has a great disadvantage when compared to the terrestrial environment – it is very difficult to access! In fact, it is awkward to actually see from very close to – even from directly above its surface.

There are quite simple and easily recognised reasons for this. Light reflects off the sea's surface so under the water is always less well illuminated and so darker than above, and much of this reflected light masks the water's surface, making it difficult to see through. Add to this the fact that light is absorbed by water and the suspended matter that it contains, and that a constantly moving surface reduces our ability to see through it, it is hardly surprising that many people only know about the undersea from films and photographs.

So films and photography are crucial to enable most people to appreciate the marine environment; they help us visualise life beneath the waves, and explain it through images of sights that few are likely ever to see directly. Both films and photographs are important informative and interpretive tools to explain the marine environment. Unfortunately many of the factors causing us problems when trying to see through the sea from above also affect photographers and film-makers, albeit in different ways.

Photo: Paul Kay

*Common sunstar (*Crossaster papposus*), north Llŷn.*

The low light levels and absorption of light clearly are problems, and the suspended material in Welsh seawater is a real complication as it can reduce underwater visibility from fifteen metres at best, right down to zero.

Fortunately technology has progressed so that modern equipment now enables us to operate and produce pictures in such conditions. There are of course many physical problems to be overcome too. Not least of these is gaining access to specific areas in the best conditions in which to produce good images.

This may sound obvious, but it is often a logistical nightmare, requiring the co-ordination of many people and a horrifyingly large amount of equipment. To photograph the stunningly beautiful colonial *Parazoanthus* anemones off Bardsey Island (Ynys Enlli) requires suitable weather and tidal conditions, appropriate boat launching times and location, several divers with all their kit (about 50kg each) and boat handling skills, as well as diving and photographic expertise too.

It is, and will remain, the privilege of the few to see such creatures first hand and even fewer are fortunate enough to be able to capture their images for others to see. Which is why it is so important that these images are produced and shown to as wide an audience as possible.

Just because we can't simply look into the sea and see what lives there does not mean that the sea's inhabitants are any less beautiful, fascinating and worthy of our attention than their land-bound counterparts.

The seas around Wales contain an immense selection of plants and animals. Some are rare, others extremely common. All have their own specific set of requirements. Some are vividly coloured, others drab, some inhabit rocky reefs, others sand. A few are seasonal visitors, but many have to stay within Welsh waters and tolerate cold winters and, sometimes, hot summers.

In fact, the conditions that make it difficult to scuba dive are just a part of everyday life for Welsh marine

Photo: Paul Kay.

*Edible crab (*Cancer pagurus*) in sponge, Menai Straits.*

Lesser octopus (Eledone cirrhosa), *Bardsey Island.*

Dahlia anemone (Urticina felina), *north Anglesey.*

Snake pipefish (Entelurus aequoreus), *St. Tudwal's Islands.*

Tub gurnard (Trigla lucerna), *Cardigan Bay.*

Photos: Paul Kay.

life. Strong currents and pounding waves make parts of the marine environment a very harsh place in which to survive let alone live. But specially adapted creatures are found in areas subject to just such conditions. Occasionally, the weather does defeat some species. A very cold spell some years ago saw water temperatures in the Menai Strait plummet to around 3°C. As a result the velvet swimming crab population dropped, as this creature cannot tolerate such low temperatures.

It is during the calmer summer months that most scuba diving and underwater photography takes place around the Welsh coast. On a hot still day the sea can warm up (in Cardigan Bay the water can reach 20°C) and become clear. This is the best time to visit it's depths and watch it's inhabitants. During June and July, male dragonets wave their long fins around to attract females. The sex of these common fish is otherwise difficult to differentiate. Male butterfly blennies guard their eggs – sometimes the female lays them inside an empty whelk shell – and will not leave them. Vividly coloured snake pipefish can be found hidden amongst seaweed – their head clearly shows that they are closely related to the seahorse. Small Welsh sharks otherwise known as dogfish swim gracefully over the seabed. Tub gurnards show off their bright blue fins. And swimming crabs bury themselves beneath the sand as they hide from potential enemies.

The Welsh undersea is a whole world in itself with numerous goings-on waiting to be watched and recorded by humans – clumsy, noisy, air-belching visitors from the oversea.

It has been said that we know less about our own seas than we do about the dark side of the moon. I can still believe it.

Paul Kay is a freelance photographer based in north Wales. He specialises in wildlife and landscape photography, with a particular interest in the marine environment.

Photo: Paul Kay.

*Sand star (*Astropecten irregularis*), Cardigan Bay*

Dal dirgelion y dŵr

Oherwydd ei bod mor anodd gweld o dan y dŵr, mae ffotograffau a ffilm yn hanfodol i ddangos fod creaduriaid y môr yr un mor brydferth a chyfareddol â rhai'r tir ac yn haeddu llawn cymaint o sylw.

Yn anffodus, mae diffyg golau a dŵr cymylog yn effeithio ar gamerâu hefyd ac mae'n aml yn anodd cyrraedd rhai llefydd pan fo'r amgylchiadau ar eu gorau.

Mae amrywiaeth mawr o fywyd gwyllt ym moroedd Cymru a llawer yn dioddef amrywiaeth tymheredd, cerrynt a thonnau cryf. Ar dywydd braf yr haf y bydd y dŵr yn cynhesu a chlirio digon i roi'r cyfle gorau i wylio'r trigolion.

Llond llaw sy'n cael y fraint honno a dyna pam ei bod cyn bwysiced tynnu lluniau a'u dangos mor eang â phosib.

Rooted in the past – *looking to the future*

Horses are used to avoid compaction when the wood requires thinning. Photo: David Mansell.

A new institution in Wales is pioneering the art of sustainable living, not least by looking after its rich heritage of wildlife. ***Jan Moseley*** *reports on the early years of the* **National Botanic Garden of Wales.**

Photo: David Mansell.

Greater butterfly orchid.

I grew up in north Wales during and after the second world war. The land, where practicable, was ploughed for crops, but agriculture had not yet embraced chemicals in a big way, and every spring the thin soil of the limestone hill behind my home produced quantities of small early purple orchids and cowslips. Garden-escaped scented white violets flowered in shady places and later, on limestone outcrops, yellow rock rose overhung the sculptured juniper. The local unpolluted stream, meandering with unkempt banks across the water meadows, was loud with the 'plops' of disturbed water voles, and hedgehogs were more commonly sighted in your back garden than squashed on the road.

Even with these natural blessings, it would have been wonderful to be able to visit and to learn from a National Botanic Garden. Kew and Edinburgh could as well have been on the moon – and if I was still in north Wales now I would be regretting the distance to the site of the National Botanic Garden of Wales near Carmarthen!

So it has been a privilege to be part of the early days of the Garden and to observe its growth, from the initial idea of William Wilkins in the 1980s to restore the historic garden of Middleton Hall, to the development of a modern botanic garden and national institution.

Rooted in a beautiful Regency landscape

The National Botanic Garden of Wales is truly rooted in the past, being set in the 568 acres of superb Regency landscape of Middleton Park. The landscape as we see it today dates from the late 18th century when

Photo: David Mansell.

The Great Glasshouse under construction.

William Paxton, having made a fortune in India, came to Wales and bought the estate. He instructed the architect Samuel Pepys Cockerell to build a new mansion in the neo-classical style and hired Samuel Lapidge, a surveyor who had worked with Lancelot Capability Brown, to design the landscape and gardens. The engineer James Grier was employed as his estate manager.

Maybe as a result of his long years in India, Paxton valued water and developed an extensive network of water features. Seven lakes were constructed with waterfalls and a cascade, as well as piped water to the mansion and a rose-garden fountain, with the overflow feeding a dipping pond in the double-walled garden which provided fruit and vegetables for the estate. Yet another overflow cleansed the gardeners' privies!

The underlying landscape, tree planting, and the earth movements necessary to create the water features produced a landscape of great beauty and diversity. At the time when the Garden took over the estate from Carmarthen County Council this wide variety of habitats and species had been largely and fortuitously preserved for the last half century by management as seven starter farms. These were generally too small to support a family, so while some were intensively farmed, others received a low-input style of part-time farming, resulting in species-rich pasture and areas of woodland and old coppice.

A heritage of biodiversity

There was considerable potential for damage if the development of the Garden had gone ahead without first discovering what exactly was present, so a series of baseline surveys of wildlife and vegetation was commissioned, after which the restoration of the main lakes began to take place. The surveys uncovered:

- the territories and movements of two different social groups of badgers
- one of the lakes as a toad-breeding pond
- otter holts and resting couches
- the presence, at more than one place, of previously unknown colonies of dormice
- lichens showing evidence of ecological continuity, their variety comparing well with many other parkland sites in Wales.

We had already been told of the presence of breeding pied flycatchers, grey wagtails and dippers in a well-watered and wooded area in the north of the estate. This area had also been visited by the British Mycological Society in 1994, who found five new Welsh records (three species of *Cortinarius*, an ink cap *Coprinus flocculosus* and a milk cap *Lactarius ruginosus*) and one species of fungi new to Britain (*Cortinarius safranopes*). The *Cortinarius* species, forming mycorrhizal associations with tree roots, caused us to take the decision to use horses to avoid compaction when the wood required thinning.

Photo: David Mansell.

An abundance of fascinating wildlife can be found outside the dome.

Student surveys have continued to add to our knowledge of specific groups or species. Any visiting invertebrate expert is welcomed with open arms and practically held hostage until some identifications have been achieved! Together they have identified:

- the garlic-scented snail (*Oxychilus alliarius*), the 'hairy' snail (*Acanthinula aculeate*) and the smallest snail in Britain (*Punctum pygmaeum*)
- numerous water invertebrates
- two nationally scarce mosses (*Gymnostomum viridulum)* and (*Weissia brachycarpa var. brachycarpa)*
- the water-net algae (*Hydrodictyon reticularis*)
- slugs, snails and moths which are indicators of semi-ancient woodland
- greeted with less enthusiasm, signs of the occasional mink passing through

Managing for wildlife

Most of the wildlife present is in areas not currently earmarked for the planting of exotics. Less than one third of the estate is under development as Garden. The rest is managed in-house and has been entered into Tir Gofal and Organic Conversion schemes.

The grazing regime is designed to retain and enhance biodiversity, and to retain the species-rich hay meadows. These areas contain plants such as the greater butterfly orchid, whorled caraway, wild angelica, southern marsh-orchid, common spotted-orchid, heath spotted-orchid, quaking grass, zig zag clover, broad-leaved helleborine, common valerian, and marsh valerian. A white sort of ragged robin may be found in some fields, and others contain over twenty-two species of waxcap fungi. At first it was difficult for the Garden to establish the regime necessary for these areas – a great deal of fencing was needed before certain fields could be grazed, and stock had to be acquired. The latter has been achieved by a type of trans-humance arrangement with ADAS's organic hill farm at Pwllpeiran.

As there is some concern that the scattered nature of the dormice colonies will have a deleterious effect on their breeding success, a linking hedge has been planted between the two main areas. A student who placed sticky tubes in an area of hazel not previously recorded as having dormice produced grey un-dormouse-like hairs; these were later identified as young dormouse which had not yet achieved the ginger coat of an adult – a welcome confirmation of breeding success.

Brown hares have bred on the estate, and a bat survey discovered five species of bats. Slight improvements to the ice-house could make it suitable for winter use as a *hibernaculum* by horseshoe bats. The presence of so many animals

Photo: David Mansell.

Cascade at Coed-felin-gat.

high up in the food chain points to good populations of lower animals, and of the plants upon which ultimately most of life depends.

On a very hot day in July 2001 the National Museums and Galleries of Wales held a 'Biodiversity Blitz Day' at the Garden. In all some 520 species were identified by various specialists and support staff, and visitors to the Garden were encouraged to get involved. The previous September we had also been lucky with the weather, with a Biodiversity Fair held to coincide with the launch of the first Carmarthenshire Biodiversity Action Plans.

Photo: David Mansell

Surveying the aquatic life in one of the lakes.

A Garden for Wales and the World

In its first few years we have concentrated on establishing the Garden in its local setting, getting in place the framework to support the next stage: a Wales-wide programme of conservation research. The Garden can now develop its relevance for the whole country – and tomorrow, as they say, the World! We have also been very conscious of its place on the cusp of the 20th and 21st centuries. Conditions prevailing now are very different from almost two centuries ago when the Royal Botanic Gardens at Kew and Edinburgh were founded. These were built in a time of colonial expansion and in a world of apparently limitless resources. Such gardens then were intended to hold, study and display collections of exotic plants from plant hunting expeditions abroad. Much emphasis was on the garden-worthiness and the economic value of plants. There is now a different agenda. The 1992 Earth Summit at Rio has brought various agreements, including the Convention on Biological Diversity which recognises ownership rights of countries over their plants and animals. Climatic change has been recognised as an issue needing urgent monitoring and study.

In the last twenty-five years there has been a massive loss of plant habitats, with an accompanying loss of associated animal species. It is recognised that forests contain up to half of all terrestrial biodiversity and that their role as 'carbon sinks' is damaged when they are lost through deforestation and degradation. It is predicted that by 2075 some 35-50% of all plant species may be extinct.

Sustainability at the Botanic Garden

Taking such concerns into account, the priorities in planning a modern botanic garden are now very different. Here at Middleton Hall we concentrate on the conservation of plant species and education about the sustainable use of resources. We plan to highlight the importance of forests through a long-term conservation project 'Woods of the World'. The Great Glasshouse is landscaped with Mediterranean plants – an area that covers only 1.7% of the Earth's surface, yet contains approximately 20% of the world's flowering plant species, and is in parts under threat. It has been designed with sustainability in mind, and heating is by a biomass boiler, which also provides heat for the main areas of the Garden. Trial plots of different biomass species have been planted for public viewing. Effluent on site is dealt with by the 'Living Machine' which uses the absorptive powers of bacterial nodules on the roots of plants floating in five tanks (through which the effluent is pumped) and three reed beds for purification, before the nutrient-rich waste water is pumped onto the biomass trial field, for uptake by the trial species.

Our countryside location means that visitors come mainly by car – and we are conscious of this use of fossil fuel. We have adopted some measures to try and overcome this, such as a new extension to the local bus service which connects with rail services. We also offer reduced fees for those who come on

foot or by bicycle – the Sustrans Cycle Route from the Severn Bridge to Pembrokeshire passes the Garden's front gate. To help accommodate it, a very ancient hedge was chopped into moveable sections and reinstated several yards in from the road. It has survived well and the herbal biodiversity has been retained. We may have been helped by some very wet summer weather!

Photo: David Mansell.

Sewage digestion by the 'Living Machine'.

Part of the cycle route also goes through an area of alder carr, which visitors would not otherwise see as it is generally too wet to walk in. This specialised habitat, with its kingcups, golden saxifrages, orange peel fungus, scarlet elf cup and the songs of myriad small birds in spring, is a delightful approach to the Garden and links in with new green tourism initiatives – people cannot destroy what they have come to see, as to avoid sinking they have to stay on the path!

The Garden is very reliant on gate receipts, without which it would be difficult for work to progress. Like most gardens it will be undergoing change for the next few hundred years, and the aim is always to have something attractive and interesting for visitors to see on return visits. This year the development of the double-walled garden will be taking place with an entirely new approach to systematic beds. Gatehouse developments, more garden transport and a new approach to catering will provide improved facilities.

Now that the framework of the Garden is well underway, conservation research and a science programme are beginning to take shape, with the building of the science block and the extensions to the nursery area and undercover provision. Rooted in the past – looking to the future. We are open every day except Christmas Day itself. Come and see us!

Jan Moseley is Conservation Co-ordinator at the National Botanic Garden for Wales.

The Garden of Wales is situated 1/4 mile from the A48 in Carmarthenshire midway between Cross Hands and Carmarthen.

Admission from 10am: Adults £6.50; Concessionary ticket £5; Children £3; Family (two adults and up to four children) £16.

O'r gorffennol i'r dyfodol

Gwarchod planhigion ac addysgu pobl am ddefnydd cynaliadwy o adnoddau – dyna flaenoriaethau Gardd Fotanegol Cymru. Mae un adran yn tanlinellu pwysigrwydd coedwigoedd. Rhywogaethau Mediteranaidd sydd yn y Tŷ Gwydr Mawr – tiroedd sy'n cynnwys 20% o holl blanhigion blodeuog y byd. Cymerwyd yr un gofal wrth addasu hen ystad Parc Middleton gydag astudiaethau o'r cynefinoedd cyn dechrau. Daethpwyd o hyd i gartrefi dyfrgwn a phathew, er enghraifft, ac i fathau o ffwng oedd yn newydd i Gymru a'r DU; ers hynny, nodwyd pob math o rywogaetbau eraill. Un diwrnod ym mis Gorffennaf 2001, daethpwyd o hyd i 520 rhywogaeth yn yr Ardd. Mae'r tir amaethyddol hefyd yn cael ei ffermio i greu amrywiaeth. Dulliau adnewyddol sy'n cynhesu'r Tŷ Gwydr a thrin carthion ac rydym yn annog pobl i ymweld ar droed neu feic. Mae'r fframwaith yn ei le. Bellach, gall y gwaith gwyddonol a'r ymchwil cadwraethol ddechrau o ddifri'.

Skates and rays around the Welsh coast – *a declining resource?*

Once a commonly caught group of fish, of some commercial value, the number of skates and rays being caught off the Welsh coast has plummeted. The Welsh Skate and Ray Group is determined to find out what has happened. ***Rowland Sharp*** *reports.*

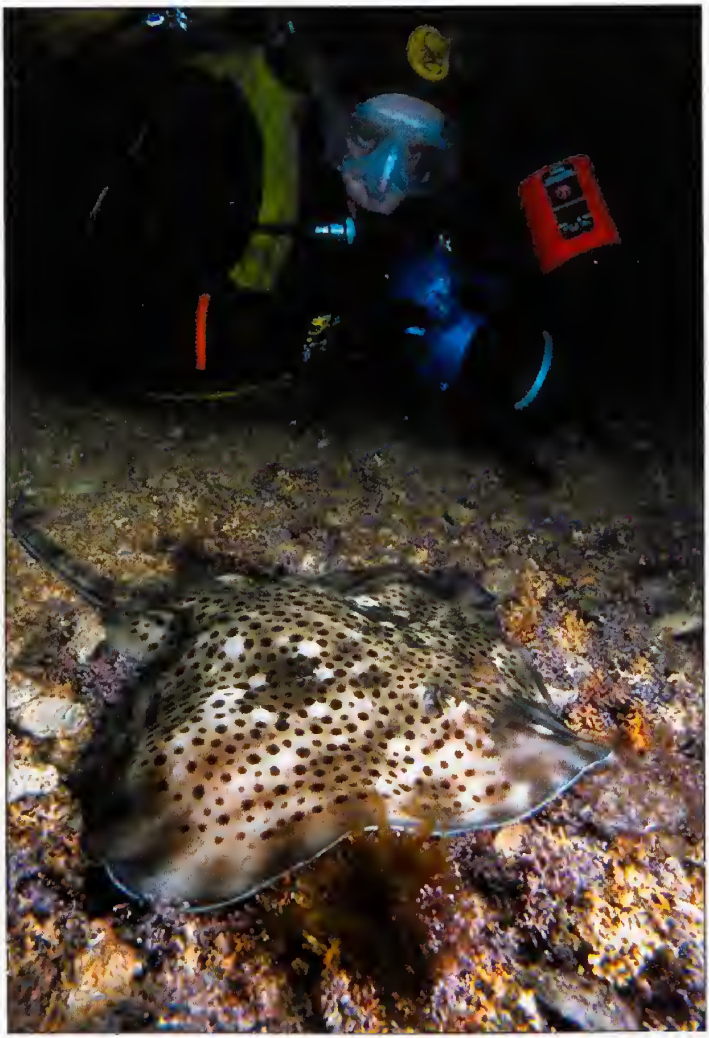
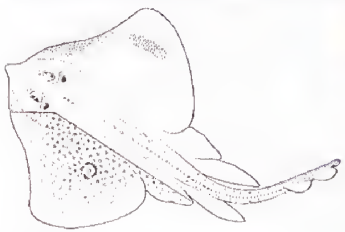
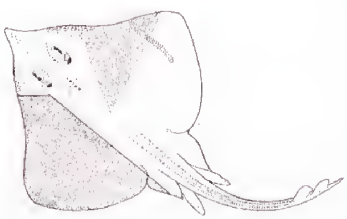


Photo: Rohan Holt.

Spotted ray.



Spotted ray.



Shagreen ray.

Skates and rays are flat cartilaginous fishes related to sharks. There are approximately 600 different species in the oceans around the world and about a dozen are found around the Welsh coast. The rays found in British waters lay eggs, the cases of which are called mermaid's purses and can be found washed up on the beaches.

The common skate used to be the largest skate commonly caught in British waters in the early part of last century; the male can grow to a maximum length of 2.8m and can weigh 103kg. In contrast, the spotted ray is one of the smallest rays, growing to a maximum length of 75cm. This small ray is becoming the most regularly caught around the Welsh coast.

Photo: Rohan Holt.

Thornback ray.

The skates and rays lay their eggs in shallow water mainly in the spring and summer. They are long-lived, slow-growing species, which take many years to reach maturity, and have relatively few young, which could account for the decline of the larger species. They eat a wide variety of food including smaller fish, crustaceans and molluscs, and they are usually found around sand banks where they wait for their food to be delivered by the tide.

The Welsh Skate and Ray Group

In the mid 1980s, recreational anglers around the coast of north Wales noticed that the catches of thornback ray were dropping alarmingly, not only in the amount being caught but also the size of individual fish. Many anglers put this down to the heavy concentration of commercial fishing for this species off the north Wales coast. There was no commercial restriction on the capture of skates and rays – and no minimum size, or quota for the amount of rays that could be landed.

When the South Wales Sea Fisheries Committee introduced a byelaw restricting the minimum size of rays that could be legally landed, it provoked a strong reaction from commercial fishermen who said that they did not think there had been a noticeable reduction in their ray catches. As a result, interested parties met to debate what was happening to the skate and ray populations and what action should be taken. This led to the formation of 'The Welsh Skate and Ray Group', consisting of a number of national bodies, commercial fishermen and recreational anglers. A grant was obtained from the Countryside Council for Wales to assist the work of the Group.

The causes of decline

There are many different theories to explain why skates and rays are declining around the Welsh coast. These include over-fishing, the disappearance of breeding/nursery grounds due in some instances to sea defence structures, the lack of prey species and the amount of sewage in the seas. With all these ideas floating around, the only way forward was to start to collect hard evidence about the skate and ray populations.

The first stage in this work has been the production of recording forms for anglers and commercial fishermen asking them to record all catches of rays, noting the species, length, sex, weight and condition. An identification sheet has been produced to help identify the different species. Anglers have also been asked if they have any archive records of their

catches which would help to provide information about past population numbers of these species. Universities and Sea Fisheries Committees have also been asked to help by providing archive information.

Records of species such as the common skate are proving very difficult to verify. While there are plenty of stories of these fish being caught around the Welsh coast, written records are few and far between. Anglers tell of the time when, as recently as ten years ago, they would go fishing and catch as many as twenty or more rays at certain shore locations around the coast of Anglesey and Gwynedd. Now they say they are lucky if they see even a small ray at the same spot and they want to know why.

Commercial fishermen in the late seventies and early eighties used to set long lines around Gwynedd and caught huge numbers of large rays; by the late eighties most long-liners had either moved elsewhere or taken up a different type of fishing. This commercial fishing is not necessarily responsible for the disappearance of rays, as some other species were also in decline. Perhaps the food source for rays disappeared due to over-fishing of other species. This could have taken place a long way away from our coast, as some species in our seas are very mobile.

Climate change – an unlikely cause

Another theory that has been suggested is the commonly used excuse of global warming, the argument being that because of warmer sea temperatures the fish have moved to different areas. This is possible, but you would expect to see rays being caught in large numbers in areas where they weren't prolific a number of years ago and, to date, there are no reports of this occurring.

An interesting and potentially controversial theory which has been talked about by recreational anglers for a number of years is that the 'clean up' of our seas, which has been taking place through improvements in sewage treatment all around our coasts, is the cause. It has been noticed that the catch of fish in areas where there have been improvements in sewage treatment has dropped when new treatment plants became operational. Not only have the fish numbers diminished but other marine life on the shore has also disappeared. Is this a general impact on the food chain, which could possibly explain why other species of fish and seabirds are decreasing? By making the seas fit to please humans in the long term, are we making them unfit for marine life?

Disturbance to the habitat of skates and rays could be another reason for the decline in their numbers. For example, sand dredging is taking place in a number of areas around our coast, disturbing sandbanks – the seabed feature most boat anglers look for when fishing for rays. But the importance of this habitat to skates and rays is not fully understood – does it provide feeding or breeding sites?

Electric fish and interference

It is known that sound travels much further underwater than on land. Are the drilling rigs, seismic testing and other noise disturbance operating off our coast causing problems for skate and ray species, by affecting their feeding habits, for example? If this is the case, any offshore wind farms that are situated on or near banks that are known feeding or breeding grounds could have a significant impact on these species and an indirect effect on others. Skates and rays have long been known to exploit the electric outputs of organisms in saltwater, to detect and capture their prey, and they are also thought to use the Earth's magnetic field for navigation. Cables from offshore wind farms could possibly also have an effect on the fortunes of this group of fishes.

Little is known about breeding and nursery areas for skates and rays and this is a subject where additional research is required. This is the next project for the Group, which will be distributing an identification sheet for egg cases of the different species, to try and identify their breeding/nursery areas. Large female rays may come in close to the coast to lay their eggs in shallow water, possibly where there is kelp or other large seaweeds so that the eggs have something to cling to until they hatch.

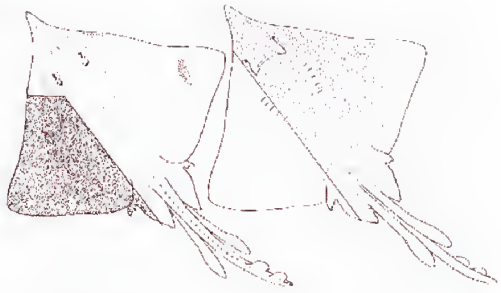
This habitat is likely to be safer for the juvenile rays, away from many predators, and they are thought to live near the shoreline until larger. If this is the case, sea defence structures, which affect the shoreline and, in some situations, cause rocky, kelp shorelines to silt over, could be affecting the rays' breeding grounds.

It is likely that there is no one single reason for the decline in the populations of skates and rays. Understanding what is happening to the populations of these fish is no easy task, but the Welsh Skate and Ray Group has made an important start with this work as well as seeking a better understanding of the biology and ecology of these species. One very positive aspect of the Group has been the bringing together of people with different views on the use of the sea around our coast. Instead of working independently or ignoring the problem, as has happened in the past, they can now work together to try and come up with solutions that can benefit everyone.

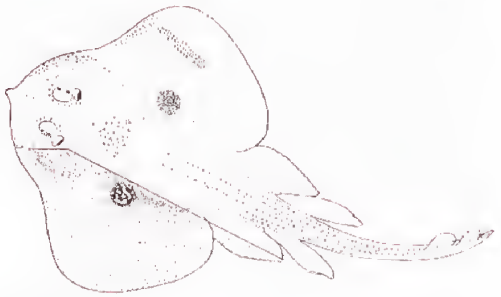
If we can find out the facts, and answer some of the questions about these fascinating fish, we will know what steps need to be taken to achieve what we all want to see: the survival and recovery of these species around the coast of Wales.

Rowland Sharp is a recreational angler and member of the Welsh National Boat Team.

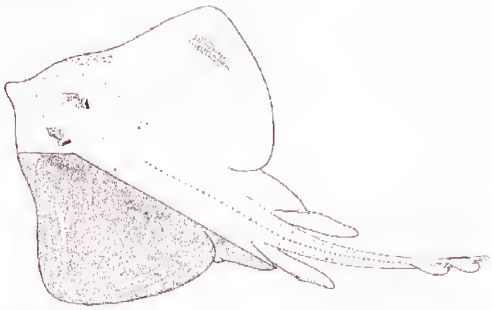
Contact details for the project are –
Shark Trust 01752 672008 – www.sharktrust.org
or at most Welsh Angling Web sites.



Common skate.



Cuckoo ray.



Small eyed ray.

Ble mae'r morgathod i gyd?

Mae Grŵp Morgathod Cymru am fynnu deall pam fod cwymp sylweddol yn nifer y pysgod. Mae'r damcaniaethau'n cynnwys gor-bysgota, colli cynefinoedd bridio, prinder bwyd a charthffosiaeth. Cynhyrchwyd ffurflenni i bysgotwyr roi manylion am ddal morgathod ond mae cofnodion hanesyddol yn anodd eu cadarnhau. Gallai prinder bwyd fod yn ganlyniad i ffactorau sydd ymhell o Gymru ac un ddamcaniaeth ddadleuol yw fod llai o garthion yn arwain at lai o forgathod. Gallai amharu ar gynefinoedd fod yn rheswm arall – trwy gloddio tywod er enghraifft – ac mae oblygiadau posib i'r sŵn a'r trydan o ffermydd gwynt yn y môr. Go brin mai un rheswm sydd ac mae angen rhagor o ymchwil. Ond mae'n galonogol fod grwp yn cydweithio ar ddarganfod y gwir.

Llên y llysiau – Y goeden afalau surion

gan **Duncan Brown**

Prosiect a gychwynnwyd gan Gymdeithas Edward Llwyd yw Llên y Llysiau i gofnodi pob math o gysylltiad rhwng pobl Cymru a phlanhigion. Mae'n ceisio casglu gwybodaeth am y rhywogaethau o dan nifer o benawdau, gan gynnwys tarddiad yr enw, cyfeiriadau llenyddol, enwau lleoedd, cofnodion hanesyddol, a'r defnydd o'r planhigion. Os oes gennych unrhyw beth i'w ychwanegu at y manylion isod, cysylltwch â ***Duncan Brown*** *(rhif ffôn: 01286 650547 neu e-bost: dbrown.waunfawr@virgin.net).*

Cyflwyniad

Coeden fechan yw hon sy'n gyfarwydd ar draws Cymru mewn cloddiau, ar ffriddoedd ac mewn coedwigoedd. Mae ei blodau gwritgoch golau yn arwydd o ddyfodiad y gwanwyn a'i hafalau surion yn yr hydref yn eu tro yn nodweddu'r tymor hwnnw. O'r goeden wyllt hon y daeth yr amryfal fathau o afalau perllan heddiw, a gellir ei defnyddio hefyd i'w himpio arni.

Enwau

Yr enw safonol Cymraeg yw coeden afalau surion[1]. Ymysg ei henwau Cymraeg eraill mae:-

afalwydden, afallen, crabotsen, pren afalau, pren crabas[3], pren afal sur, afal sur, afal sur bach, afalau surion bach, afalen wyllt, afalwydden, afallen, afallen sur, coed afalau surion bach, cogwrn, corafal, crabotsen, crabosyn, pren crabas surafal, surafallen[4]

Ei henw gwyddonol yw *Malus sylvestris*[2] gyda'r ffurfiau domestig yn amrywio megis *Malus domestica*, *Malus x purpurea* (ac amryw byd o rai eraill). Hen ffurf Gymraeg afal oedd abal. Gelwir y ffrwyth yn aval yn y Gernyweg a'r Llydaweg[6]. Daw'r gair crabas o skrabba (Swedeg am goeden afalau surion a drodd yn crab yn Saesneg y 14G a scrab yn Saesneg y gogledd)[5]

Enwau lleoedd, pobl, ac ati

O 812 o enwau lleoedd yn y Siarteri Eingl-Sacsonaidd a Chymreig ceir 0.5% yn cyfeirio at afal o rhyw fath, neu berllan (a all gynnwys coed gellyg hefyd wrth gwrs)[12]. Mae rhestr gynhwysfawr enwau lleoedd Melville Richards[14] yn cyfeirio'n aml at afal neu afallen. Y mae 56 o enwau yn y rhestr sy'n perthyn i sir neu ardal benodol yng Nghymru, er enghraifft Caerfallen, sef y mwyaf niferus (y gororau fwyaf ond hefyd ym Môn), Erw'r Afallen (gwasgarog iawn), Pant yr Afallen (Meirion a Chaernarfon), Dolafallen (Powys a Dyfed), Dryll yr Afallen (y gogledd-ddwyrain, yn rhannol oherwydd lledaeniad rhanbarthol iawn enwau â'r elfen dryll ynddynt[13]). Yn y rhestr cafwyd hefyd tair enghraifft o Yr Afallen Sur.

Yr unig gasgliad y gellir ei wneud yma yw nad enwau lleoedd yn deillio o goed afalau melys perllannoedd ydynt gan y disgwylid i'r dylanwad hwnnw fod yn gryfach yn nwyrain Cymru, ar y gororau – dosbarthwyd y 56 uchod yn weddol gyfartal rhwng y dwyrain (31) a'r gorllewin (25). Ond mae gwahaniaeth na fedrir ei egluro yn nosbarthiad yr enwau rhwng siroedd y de (19), y canolbarth (3) a'r gogledd (43).

Llên Gwerin

Defnyddir y gair crab, bachigyn gwrywaidd crebyn, (ben. craben) yn ffigurol am greadur o ddyn sur afrywiog[6].

Yn yr wyddor Ogam Wyddelig mae'r llythrennau oll yn cynrychioli coeden o rhyw fath. Y llythyren Q yw'r afallen.

Arferion plant

Roedd dwyn afalau o erddi yn rhan o ddireidi plentyndod yn y broydd gwledig.

Llenyddiaeth

Ceir y cyfeiriadau cyntaf at y goeden afalau surion yn ein llenyddiaeth yn yr 14G. Dyma enghraifft gynnar yn defnyddio'r gymhariaeth rhwng yr afal sur a'r afal melys fel symbol:

Fel crab wrth afal croywber
Fydd rhai o'r gwledydd i'r glêr
1445-75 (*Gwaith Guto'r Glyn* 1939)

Meddyginiaethol

Does dim defnydd meddyginiaethol y gwyddys amdano i'r afal sur, nac i'r cwltifarau.

Defnydd

Ychydig a wyddys am yr hen fathau traddodiadol o afalau seidr ag eithrio'r ffaith fod iddynt enwau lliwgar ac awgrymog megis Sheep Snout, Foxwhelp, Slack-me-girdle, a'r enwocaf oll, y Red-streak. Ceir un afal hefyd a elwir yn Perthyr, y credid iddo gael ei enwi ar ôl pentref o'r un enw yn sir Fynwy. Disodlwyd yr hen fathau hyn yn weddol ddiweddar gan y rhai a ddatblygwyd trwy ddulliau gwyddonol. Mae eu henwau yn cynnwys yr elfen Norman (fel y White Norman a'r Bulmer Norman)[14].

I'r saer coed mae'n bren clos, caled, addas iawn i'w durnio a'i gerfio. Roedd yn hoff bren, fel y ddraenen ddu, i wneud ffon gerdded. Nodwedd hoff oedd bonion yr aml ganghennau ar y goes wedi eu naddu'n gromennau bach melyn yn erbyn y croen tywyll. Dyma'r pren a ddefnyddid yn draddodiadol gan seiri i wneud olwynion cocos enfawr ym mecanwaith y melinau dŵr a gwynt, gan forteisio dannedd o bren afal, y math gwyllt neu'r math gardd, i gylchoedd yr olwynion ac i echelydd derw.

Cofnodir yr afallen mewn rhai mannau fel coeden y tociwyd ei changhennau yn rheolaidd (pollard)[9]. Cofnododd Iarll Orford iddo blannu 5000 crabb setts mewn gwrych yn Swydd Caergrawnt yn 1718. Efallai bod hyn yn arfer ehangach ar ystadau'r cyfnod, gan gynnwys rhai yng Nghymru[9]. Er mwyn gwella amaethyddiaeth, bu'n arfer gan y cymdeithasau amaethyddol yng Nghymru yn yr 18G wobrwyo perchenogion, tenantiaid ac eraill am bob math o ymarfer da. Cynigiodd y rhan fwyaf ohonynt wobrau am blannu gwrychoedd. Drain gwynion (white-thorn quicks), celyn a choed afalau surion oedd y rhai a nodwyd[10].

Gerddi

Mae'r afallen sur yn rhiant i lawer o goed afalau surion addurniadol yn yr ardd. Maent i gyd yn goed bach hawdd iawn eu tyfu ac yn rhoi blodau dymunol dros ben at ddiwedd y gwanwyn sy'n amrywio o goch a phorffor i wyn. Mae'r ffrwythau sydd yn canlyn yn amrywio o felyn i goch a bydd rhai ohonynt yn parhau'n lliwgar ymhell i'r gaeaf.

Ystyriaethau gwyddonol

Mae'r goeden hon yn arddangos ei blodau hardd yn nechrau Mai (Mai 3ydd ar gyfartaledd yn ôl data a gasglwyd yn ardal Caerwrangon yn nechrau'r 20G, Sparks, cys. pers.). Mae'n debyg fod y cyfnod blodeuo y pryd hynny fymryn yn gynharach yng Nghymru, a, diolch i newid yn yr hinsawdd, fymryn yn gynharach eto heddiw efallai. Mae hadau'r afal yn cynnwys seianinau gwenwynig[7] i nadu, yn nhrefn esblygiad mae'n debyg, i anifeiliaid eu bwyta a'u difa. Bu farw dyn yn yr UD ar ôl bwyta llond cwpan o had afalau[11].

Bwyteir yr afal gwyllt gan famaliaid megis moch gwyllt sydd yn gwerthfawrogi'r siwgr sydd ynddo, er mai sur ydyw o'i gymharu â'r cwltifarau wrth gwrs. Bwytaodd yr anifeiliaid hwynt oddi ar lawr y goedwig a gwasgaru'r hadau yn eu tail. Mae'r broses hon yn digwydd hefyd i ffrwythau coed eraill sydd yn parhau'n hwy ar y goeden (ee. celyn), ac nad ydynt yn felys o gwbl. Addaswyd y rhain, mae'n debyg, i ddenu adar, creaduriaid sydd yn gallu hel eu bwyd oddi ar y brigyn ac na fedrant flasu na surni na melyster.

Mewn mannau lle mae coed afalau surion yn gyffredin gellir efallai ddefnyddio patrwm eu dosbarthiad dros y tir i ddehongli hanes y tirlun a'r defnydd a wnaed o'r fangre yn y gorffennol. Gallant fod yn arwydd o hen gloddiau, tir na fu dan goed trwchus ers amser maith (mae coed afalau yn ffynnu'n well mewn mannau agored). Gallent hefyd fod wedi deillio o weddillion prydau bwyd a fwytawyd yn yr awyr agored.

Yn ôl rhai botanegwyr, mae mân flew ar goesyn yr afal sur yn arwydd fod yna elfen o'r cwltifar *M.domestica* ynddo gan mai di-flew, yn ôl pob son, yw'r afal sur pur.

Hanes

Cyfeirir at un goeden ar ddeg yn benodol yn Y Deddfau Cymreig ac yn eu plith, y goeden afalau. Rhoddwyd gwerth o 60 ceiniog ar goeden afalau ond hanner hynny ar surafallen ffrwythog. Gwerth honno cyn ffrwytho oedd 4 ceiniog[10]. Yn y 658 o gyfeiriadau at goed o rywogaethau penodol yn y Siarteri Engl-Sacsonaidd a Chymreig[9], coed afalau oedd 9.7% ohonynt. Cyfeirir yn y Siarteri Eingl-Sacsonaidd at ddraenen wen, draenen ddu ac afal ddwywaith yn amlach yn yr ardaloedd lle cafodd y fforest hynafol ei chlirio yn gynnar nag yn yr ardaloedd lle 'roedd yr hen goedwigoedd yn parhau[9].

O dan y drefn Normanaidd Ganol Oesol cafodd yr afallen ei chyfrif mewn rhai mannau fel vert (sef gwyrddni a warchodwyd trwy ddeddf)[8]. Ceir manylion amryw o droseddau yn erbyn y vert yn Ardudwy, Meirion dros y cyfnod Hydref 1325 i Medi 1326, megis cymryd llwythi o subboscus (underwood) a virgarum (gwiail) gan gynnwys un surafallen[10].

Roedd yn arfer gan borthmyn Cymreig a deithiai drwy ddyffryn Evesham ar eu ffordd adref i Gymru yn y 19G, neu ar ôl bod yng Nghaint (18G), ddod â thoriadau o goed afalau adref a'u rhoi i bobl yn rhoddion. Dywedir fod cwltifarau diddorol wedi cyrraedd ffermydd anghysbell yng nghefn gwlad Ceredigion a mannau eraill fel hyn.

Awdur

Duncan Brown
Awduron a chynghorwyr eraill:
Maldwyn Thomas, Twm Elias, Ann Daniels

Cyfeiriadau, ffynonellau, llyfryddiaeth

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The lore of plants

Llên y llysiau (The lore of plants) ... is a project initiated by Cymdeithas Edward Llwyd to collect information on the cultural connections of plants in Wales, and to celebrate them. These connections include literary references, origins, place names, historical references and the uses of plants.

Crab apple trees grow throughout Wales, and may be seen in hedgerows, woods and upland areas. There are many local Welsh names for this wild apple, which often include the word 'crab', which comes from the Swedish 'skrabba', meaning a sour apple tree. Over the years the wood from the crab apple tree has been used in many ways, for example for walking sticks, and in the wheels used in windmills and watermills. Its blossoms are a sign of spring and the sour apples in the autumn used to be popular with wild pigs, which would then spread the pips throughout the forest.

Coastal change – *releasing the pressure*

Mawddach estuary. Photo: Rohan Holt.

The coast is caught in a squeeze caused by sea defences, and conservation designations reinforce the assumption of a static coastline. But, as ***Dr Siegbert Otto*** *points out, we must try to understand how our coasts work, and negotiate between natural coastal processes and human priorities if we are to escape the damaging effects of a man-made 'coastal change dragon'.*

Mankind has always had an uneasy relationship with the coast, and it would be fair to say that the UK has reached something of a crisis in terms of coastal management. The long-term impacts of coastal misuse, plus the very real spectre of rising sea levels and larger and more frequent storms, mean that it is hugely expensive to maintain coastal defences. Recently it has become apparent that a natural, dynamic shoreline is an extraordinarily valuable environment, as not only is it capable of absorbing and adjusting to wide variations in wave energy (far more efficiently than concrete walls), but it also plays a vital role in sustaining marine and coastal ecosystems. A lesson arising from this reappraisal is that it is important to work with rather than against coastal processes, but how far have we come since the inception of this idea?

Nature conservation is generally concerned with the preservation of natural environments from loss, damage, or neglect, by controlling the use of and systematically protecting natural resources. Maintaining the natural beauty, wildlife and opportunities for outdoor enjoyment is of fundamental importance, but we are in danger of creating nature sanctuaries – rather than resilient coastlines – in the process. This concept of 'resilience' – a buzzword from the 90s – stands for the ability to deal flexibly with both natural and social dynamics in the coastal area.

Nature conservation continues to be very site-specific, leading to disjointed islands of nature reserves, making an integrated and holistic approach to nature conservation virtually impossible. For instance, the few coastal freshwater lagoons found dotted around Britain are the only marine priority habitat hosted by the UK and listed under the EU Habitats Directive. Consequently, these enjoy the highest degree of environmental protection and management. On the other hand, there can be but little doubt that any coastal freshwater lagoon protected by a narrow dune ridge or shingle bar will eventually be transgressed. A freshwater lagoon is only a transitional stage in the evolution of the wider coastal zone. Further sea level rise – from whatever cause – will convert this lagoon first into a brackish and then into a saline lagoon. Many animals and plants will die or migrate, some will stay and survive, whilst others will adapt and possibly give rise to further nodes within the evolutionary web. In a case of severe coastal erosion threatening the freshwater lagoon, the most appropriate management option, based on sound science, would be to allow 'managed retreat', or realignment of the coastline, resulting in the loss of the freshwater lagoon. Unfortunately, however, the expertise of coastal geo-scientists is still not considered fully when management decisions are taken; decision making in nature conservation is all too often clouded by emotions which ultimately will not help preserve coastal habitats, let alone result in resilient coastlines.

We cannot allow our coastlines and estuaries to become removed from natural processes. There is nothing natural about an environment which is frozen in time and space, unable to respond to factors which have shaped its existence in the first place, and which should be able to continue to do so. Every natural environment evolves, by way of plant succession, sediment accretion and erosion, or simply by inland migration driven by sea level rise. As a result, one coastal habitat will naturally metamorphose into another; for instance mudflats evolve into saltmarshes by sediment build-up and plant colonisation, and there are no dunes without wide fronting beaches as the wind at low tide picks up dry sand to feed the dunes.

Three types of coastal change may occur independently or simultaneously: physical, chemical and biological, varying in scale, space and time. Effective coastal management requires an understanding of the contributions and interactions of all three types of change, because these environments are also of fundamental importance to the local economy and are subject to a wide range of human pressures. Much progress in this respect has been made for the Teifi Estuary in west Wales, for which an Estuary Management Plan has been completed, the only one so far for an all-Welsh river (Otto, 2000). The science and understanding of the estuary is essential to its management, defining not only constraints but also opportunities, but this is not an end in itself. The next task, or 'step beyond understanding', is to pull together and manage the estuary to achieve a balance between the use and non-monetary value of this natural resource.

We often lack basic knowledge of causes and effects in coastal processes and cannot afford the time to wait for research results. Consequently there is a dire need for decision-makers to become more adventurous, although within well-defined constraints. First, a national inventory is needed of all natural and man-made coastal barriers, such as sea banks, dune ridges or shingle bars, which the sea could be allowed to breach without putting lives or properties at risk. Then, on a site-by-site basis, we should establish the merits of letting natural forces loose – the learning process would be phenomenal!

Scientists have mastered many natural phenomena in the past, not by force but by in-depth understanding. This is why science has succeeded where magic has failed, as it has never tried to cast a spell over nature. But perhaps we are still looking

for that 'spell', the 'magic' which will allow us to impose our will on the environment, in order to design coastlines and nature reserves as we think they should be? Designer coastlines have been a curse since Roman times, as evidenced by the now actively eroding Welsh coastline of the Severn Estuary (Otto, 1998b). We are still stubbornly trying to control nature, an outdated attitude borne of over-rated 20th century achievements and man's striving towards maximum comfort and convenience. At present we continue to exacerbate coastal problems by trying to keep what is not ours to keep, and what undoubtedly will have to be surrendered at some stage in the future.

We all too often forget that many estuaries, which are now designated SSSIs, SACs and SPAs and of the highest conservation value, only came about after the last ice age (some 10,000 years ago), when the Ice Dragon withdrew and drowned coastal valleys in the process. The Coastal Change Dragon had arrived, and with it rates in sea level rise of at least ten times larger than at present. Most coastal environments, once they have reached an equilibrium with the prevailing wind, waves and tides, are actually able to adjust to and keep pace with the continuous rise in sea level, provided a continuous sediment supply is assured and not interrupted by man-made structures, or depleted by the dredging of offshore sandbanks, for example (Otto, 1998a). Understandably, the transgression will move actively mobile sedimentary environments inland.

Our forefathers lacked knowledge and foresight, and their over-zealous reclamations and hard defence structures prevent this inland migration in many places today. This process is termed 'coastal squeeze', and results in the loss of valuable wildlife habitats and important buffer zones effectively dissipating wave energy. There is little doubt that a significant number of habitat creation projects must be initiated as a matter of urgency in order to offset any losses and maintain levels of habitat at those of at least the early 1990s, if not earlier. This will have to involve the saltwater inundation of significant parts of hinterland previously fully reclaimed. This will also mean that in some cases a marine priority habitat, such as a coastal freshwater lagoon, may have to be lost for the sake of future coastal resilience.

Photo: Rohan Holt.

Cemlyn lagoon, Anglesey.

Such a policy, however, cannot be implemented overnight, and I am certainly not an advocate of abandoning coasts and estuaries. That would not simply be a case of leaving nature to its own devices after centuries of human dominance and interference: it could unleash a new, 'genetically-modified' Coastal Change Dragon of our own making, which could bring about catastrophic losses of coastal areas. The most likely route to success is a gradual release and calculated freeing up of carefully selected parts of the coastline, so that coasts will find their equilibrium and in the future can adjust – without or with minimum human intervention – to changing climatic and hydrodynamic conditions. This is a mammoth task and requires a change of attitude; many features in the British landscape which are looked upon as the epitome of 'nature', are in fact man-made. Examples include significant parts of the magnificent dune complexes of the north Norfolk coast and vast expanses of former wetlands along the Severn Estuary, such as the Wentlooge Levels between Cardiff and Newport.

Will we ever be able to return coastlines and estuaries back to a state from where they can continue to evolve naturally again? Evolution is a gradual process, changing coastal habitats into different and usually more complex or better forms. How can science aid this process when chronically suffering from over-simplification? To date, coastal zone management scientists and practitioners still do not have the spectrum of ideas that is needed to bring about resilient coastal zones.

Photo: David Woodfall.

Sea defences at Barkby beach, Prestatyn.

They need to be as broad as nature itself, otherwise we will never be able to interpret nature and make our problem-solving computer models more realistic and finally applicable. Future research emphasis should certainly be placed on identifying causes and effects in the coastal zone, particularly within the context of man's interference. Another step towards the goal of resilient coasts must be the immediate establishment of a buffer zone in which any further industrial, retail or residential developments will be forbidden. This buffer zone should be based on a national coastal vulnerability study – unfortunately, this most important document has not even been commissioned yet.

This brief article does not aspire to give any answers to a subject as complex as nature itself, but is meant as a provocative glance at the present day dilemma in coastal zone management, and as food for thought.

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Dr Siegbert Otto is an environmental and geoscientific consultant, currently specialising in environmental management strategies and risk appraisal, including Coastal Zone Management and Environmental Impact Assessments.

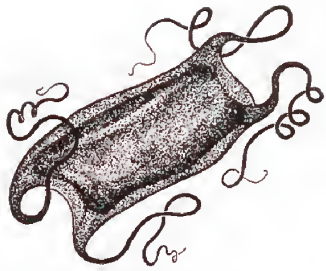
Gall natur warchod y glannau

Rydym yn ynysu ein harfordir oddi wrth y prosesau naturiol a fyddai'n ei warchod. Mae amddiffynfeydd môr yn ddurd iawn ac mae angen gweithio gyda phrosesau'r glannau yn hytrach nag yn eu herbyn. Ar ôl cyrraedd cydbwysedd gyda'r gwynt, y llanw a'r tonnau, gall y rhan fwyaf o gynefinoedd glan môr addasu i gwrdd â chynnydd yn lefel y môr, cyn belled â bod digon o waddod ar gael.

Mae rhagfuriau caled a chynlluniau adennill tir wedi 'gwasgu'y glannau gan golli cynefinoedd gwerthfawr a'r lleiniau clustog sy'n gwanhau grym y tonnau. Nodweddion dros dro yw rhai o'r cynefinoedd sy'n cael eu gwarchod ac, er mwyn amddiffyn y glannau yn y tymor hir, bydd rhaid ildio darnau o dir i'r môr, gan wneud hynny'n ofalus a graddol. Rydym yn dal i geisio rheoli natur trwy gadw tir nad yw'n eiddo i ni – bydd rhaid ei golli rywdro.

Nodiadau'r **Cynulliad**

gan **Gethyn Williams**



Bron dair blynedd ers cyfarfod am y tro cyntaf, mae Cynulliad Cenedlaethol Cymru'n cael ei draed dano. Fel y dywedodd y Gweinidog Amgylchedd, Sue Essex, yn ei Darlith Gyhoeddus ym mis Mawrth, mae Cymru yn arwain datblygu cynaliadwy yn Ewrop ac mae'r math yna o syniadau pob-maes yn graddol wthio agenda gwleidyddiaeth gydlynol yn ei blaen yng Nghymru.

Roedd y Pwyllgor Datblygu Economaidd yn ymwybodol o ymrwymiadau datblygu cynaliadwy wrth gynnal eu Harolwg Ynni, ac mae Jane Davidson, y Gweinidog Addysg, yn awyddus iawn i gynnwys datblygu cynaliadwy yn y Cwricwlwm Cenedlaethol. Ym mis Ebrill, llwyddodd cynhadledd WWF/Oxfam a'r Cynulliad, 'Cymru a'r Byd', i roi mwy fyth o sylw i'r maes wrth baratoi'r tir ar gyfer presenoldeb Cymru yn Uwchgynhadledd y Ddaear yn Johannesburg. Bydd Prif Weinidog Cymru yno.

Fodd bynnag, fu'r llwybr ddim yn gwbl wastad. Chafodd yr adroddiad blynyddol am ddatblygu cynaliadwy (sy'n ymrwymiad statudol) ddim ei drafod yn y Cynulliad tan fis Mai, 6 mis yn hwyr. Yn fy marn i, y sialens gerbron y Cynulliad yw troi'r agenda gydlynol yma yn bolisïau effeithiol, byw.

Dylai'r cynlluniau a allai gyflawni hyn, fel diwygio'r broses gynllunio, Cynllun Gofodol Cymru, a pholisi bioamrywiaeth a morol, fod yn cydblethu i'w gilydd, yn hytrach na chanslo'i gilydd a bod yn esgus tros osgoi cynnydd pellach. Dyna pam, ar hyn o bryd, fod gan Rhodri Morgan rôl mor allweddol fel cydlynydd y Cabinet ar gyfer materion pob-maes.

Mae hefyd yn amser prysur o ran y portffolio Amaeth. Mae galwadau am arallgyfeirio ac am gynyddu maint y cynllun Tir Gofal yn berthnasol ar y funud, gyda'r broses o ddiwygio'r Polisi Amaeth Cyffredin ar agenda'r Undeb Ewropeaidd. Mae'r Cynulliad wedi creu tri gweithgor, gyda chynrychiolwyr o'r sector gwirfoddol, i ystyried safbwynt Cymru.

Mae oblygiadau amlwg i fioamrywiaeth a pholisi cynllunio oherwydd yr ymwybyddiaeth gynyddol o faterion amaeth-amgylcheddol a thrwy'r Strategaeth Goetiroedd, a gafodd gefnogaeth gref gan aelodau'r Cynulliad ddiwedd y llynedd. Yn sicr, bydd pawb sydd ynghlwm wrth y sector gwledig (gan gynnwys y rhai sy'n dibynnu ar dwristiaeth) yn gobeithio am haf llwyddiannus o sioeau a rhagor o ymwelwyr, wrth i'r diwydiant geisio dod ato'i hun ar ôl clwy'r traed a'r genau.

Yn y cyfamser, mae'r Cynulliad yn ystyried pa dannau pellach i'w hychwanegu at ei delyn. Mae'r ddadl gyfredol am ynni gwynt wedi gosod y drafodaeth am hawliau deddfwriaethol yn ôl yng nghanol yr agenda. Ar hyn o bryd, does gan y Cynulliad ddim grym i roi caniatâd cynllunio i ddatblygiadau ynni sy'n gallu cynhyrchu mwy na 50MW. Daw penderfyniadau o'r fath dan adain yr Adran Ddiwydiant a Masnach. Mae sawl carfan o fewn y Cynulliad Cenedlaethol wedi mynegi'r awydd i weld y grym hwnnw'n dod i Gymru. Os na fydd hynny'n digwydd, fe fydd gan y Cynulliad lai o arfau ym maes ynni, a gallai hynny olygu ei fod yn dilyn dewisiadau llai adnewyddol a llai cynaliadwy. Felly, ar ryw ystyr, y ddadl am ynni adnewyddol a chynllunio sy'n creu cefndir i ymgais y Cynulliad i brofi ei berthynas ei hun â San Steffan.

Bydd awydd y Cynulliad i gael y grym i wneud y fath benderfyniadau ac, yn fwy allweddol fyth, ei lwyddiant neu ei fethiant i'w ennill, yn cael effaith anferth ar ddatblygiadau polisi, yn arbennig ym maes cynllunio. Dyma un enghraifft o'r ffordd y bydd polisïau pob-maes yn parhau i gael effaith caseg-eira ar waith y Cynulliad yn ystod y misoedd nesaf. Allwn ni ddim ond gobeithio na fydd dynesiad etholiadau'r Cynulliad o fewn llai na blwyddyn ddim yn atal y materion allweddol yma rhag cael eu trin yn briodol yn y cyfamser.

Gethyn Williams yw Swyddog Gwybodaeth y Cynulliad ar ran Cyswllt Bywyd Gwyllt a Chefn Gwlad Cymru.

Assembly *Notebook*

by Gethyn Williams

Nearly three years since it first convened, the National Assembly for Wales is finding its feet. As Environment Minister Sue Essex noted in her Public Lecture in March, Wales is at the forefront of the sustainable development movement in Europe, and such over-arching concepts are slowly forcing the agenda of joined-up politics in Wales.

The Economic Development Committee has been mindful of sustainable development commitments whilst undertaking their Energy Review, and Jane Davidson, Education Minister, is keen to include sustainable development in the National Curriculum. The WWF/Oxfam/NAW 'Wales and the World' Conference in April raised the profile even higher, preparing the ground for a Welsh presence at the Earth Summit in Johannesburg, which the First Minister will attend.

Progress however has not been entirely smooth. The annual sustainable development report (a statutory obligation) did not get debated in the Assembly until May, nearly 6 months late. As I see it, the challenge ahead for the Assembly is to steer this joined-up agenda into effective, living policies.

Initiatives which can achieve this, such as planning reform, the Wales Spatial Plan and biodiversity & maritime policy, should compliment each other rather than cancel each other out or become used as an excuse to avoid progress. This is why Rhodri Morgan's role, as Cabinet co-ordinator of cross-cutting issues, is so vital right now.

It is also a busy time for the Agriculture portfolio. Calls for diversification in farming and for further capacity increases in the Tir Gofal scheme are pertinent now, with Common Agricultural Policy reform on the agenda within the EU. The Assembly has set up three working groups, with representation from the voluntary sector, to look at the Welsh position.

The rise in agri-environmental awareness has obvious implications for biodiversity and planning policy, as does the Woodland Strategy, which was strongly endorsed by Assembly Members late last year. Certainly everyone connected to the rural sector (including those reliant on tourism) will be hoping for a successful summer of live shows and increased visitor numbers, as the industry attempts to stabilise after last year's foot and mouth outbreak.

In the meantime the Assembly is considering what new arrows it may add to its bow. The current wind energy debate has put the issue of more Primary (law-making) powers right back on the agenda. Currently, the Assembly does not have the power to grant planning permission for energy developments with a capacity of over 50MW. Such decisions come under the powers of the Department of Trade and Industry. Many factions within the National Assembly have expressed a desire to see these powers come to Wales. Should they not be granted, the Assembly will have a smaller toolbox in the field of energy, which could see it pursue less renewable or sustainable options. So in a sense the renewable energy and planning debate is a backdrop against which the Assembly is testing its own relationship with Westminster.

How far the Assembly pushes for the powers to make such decisions for itself, and more crucially, whether or not it gets them, will have a huge impact on policy development, especially in planning. This is just one example of how the 'cross-cutting' of policy will continue to have an increasingly important domino effect in the work of the Assembly over the coming months. We can only hope that the prospect of Assembly elections in less than a year does not stop these crucial issues from being given due consideration in the short term.

Gethyn Williams is Assembly Information Officer for Wales Wildlife & Countryside Link.

Green Bookshelf

James Robertson, Frances Cattanach

My childhood wonder at the natural world really only started to take shape when I acquired my first *New Naturalist*, and I owe the series a great debt. But the *New Naturalist* Library has been through a thin time. A clever re-design left the series with nasty wide margins and almost unreadable print. Few new titles appeared, and the absurdly small print-runs meant that hardbacks were snapped up by the trade, to be re-sold on the second-hand market at inflated prices reflecting the huge collectors' market. So it is good to see this influential series back on form. Two new titles have appeared this year, both of which measure up to the high standards of the glory years.

Moths by **Michael Majerus** (HarperCollins, 2002) has the hard task of following the classic volume of the same title by E.B. Ford, and does so admirably. Where Ford unravelled the genetics of moths, Majerus describes the many parts they play in the drama of nature, revealing their myriad strategies, whether sequestering chemicals from plants to make themselves poisonous, or jamming bats' sonar. Open any page and you will learn something new. Majerus has marshalled a huge amount of technical information; scientific papers are eviscerated and served up by the dozen; yet even when handling the driest of technical material, he manages to inject a schoolboy's enthusiasm for moths into his writing.

Peter Marren's ***Nature Conservation*** (HarperCollins, 2002) also follows a previous volume on the subject, by Dudley Stamp. The two volumes could not be more different. Dudley Stamp was very much a geographer and a committee man, part of the conservation establishment. His style is instructive, rather than engaging. He wrote his text before his death in 1966, and it was already looking dated by the time the second edition came out in 1974.

As Marren says, thirty years on, the world of conservation has changed utterly. The pioneering days when the rudiments of conservation – what it was, how to do it – had to be learnt from scratch and institutions had to be formed, has grown into a business, its net spread wide the better to engage with people, plans and politics. The knowledge gained from a decade and a half working for the Nature Conservancy Council, combined with the perspective of a decade earning a living as a natural history writer and commentator, give Marren a good vantage point from which to observe the nature conservation scene. Sceptical of some of the claims of conservation organisations, he keeps his critical eye sharply focussed on the state of nature. This provides a unifying narrative, and a distinctively personal tone to his account.

If you have ever doubted the endless pledges of conservation agencies to 'conserve and enhance nature', or wondered if conservation's foot-soldiers were stumbling blindly into the bog of biodiversity action plans, then you will find the evidence here. If, like most people, you have given little thought to such concerns, then this book should set you thinking. Those who care about nature, good writing and good books will find it a pleasure to own.

Graham Harvey, agricultural editor for *The Archers*, surprised many people with his merciless critique of farming, *The Killing of the Countryside*. Now he has chosen an even broader terrestrial canvas on which to demonstrate his understanding of agriculture, ancient and modern. ***The Forgiveness of Nature: The Story of Grass*** (Jonathan Cape, 2001) is the story of humans and the story of nature. It embraces human evolution, culture and civilisation, pastoralism and agriculture, and even leisure and entertainment.

In Harvey's hands, grasslands become more than places where animals graze. They are part of the very soul of our species, they are where we came from, they are what has shaped us, and they are the future we should strive for, our rightful destiny. As he puts it, "In the ancient green mantle of field and hillside lies the hope of the nation's redemption." Harvey's take on human history, and the use and abuse of natural resources, offers much food for thought. He is an enthusiastic supporter of pastoralism, a subject receiving increasing attention in European nature conservation circles. What we need is the return of the wandering shepherd, to bring back 'sustainable' grazing to the hills of Wales.

The Forgiveness of Nature is full of passion and good writing. It has about it the wonder of both the strange human story which we are all part of, and of nature. Reading this book is not a bad substitute for stepping outside onto a dewy lawn, cobwebs shimmering in the early morning sun.

James Robertson

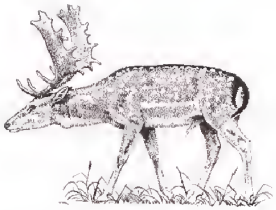
The New Encyclopaedia of Mammals
David MacDonald, Oxford University Press £35.00 hardback
ISBN 0-19-850823-9

After this book's size, I was struck by the illustrations. There are numerous fabulous photos of a vast range of mammals: kinkajou, dugong, and agouti alongside the more familiar elephants and big cats. The artwork is equally impressive, often depicting behaviour, closely related species, or bone structure.

But this book is not just visually exciting. It brings together research at the forefront of mammalogy. It covers about 4600 species, arranged in taxonomic order. It looks at the distribution, description, evolution, diet, form and function, behaviour, interaction with humans and conservation issues of the species. Where else would you find a diagram of the burrow system of the mountain beaver, or a description of how early North American settlers attracted pronghorns to within gunshot range by tying handkerchiefs to poles and waving them in the air? You certainly couldn't ask for anything more comprehensive, and if you are interested in mammals, you should not be without it.

Frances Cattanach

Nature *at large*



Records of mammals often come to you in the most unexpected circumstances. While on the phone to Iolo Williams about a forthcoming TV series, he exclaimed that he could see a mink on the opposite riverbank. I won't repeat his words; suffice it to say he didn't use a term of endearment for these adaptable animals which continue to spread into north-west Wales. Their population movements, and impact on water vole in particular, remain high on the agenda of the north-west Wales riparian mammal group. In May, Rob Strachan ran a training session on identifying mink signs so that local people could gain a better understanding of their distribution.

In late April, news that **Bovine Tuberculosis** had been diagnosed in cattle herds in mid and north-east Wales raised concern in the minds of farmers and conservationists alike. Clearly, when TB infects a valuable herd of cattle it has economic repercussions for the farm; but conservationists are just as concerned that badgers may be threatened by the TB itself, by legal control, and by persecution. Otters continue to be very evident, unfortunately often as road-kills. 160 otter post-mortems have been carried out at Cardiff University in the past year. Many more are not picked up straight away, and then disappear. There seems to be an increased interest in taxidermy, as more of these magnificent creatures are found. If you find a dead otter, please report it to your local Wildlife Trust or the Environment Agency, who will collect it.

In Brecknock, Phil Morgan reports two otters killed in the first four months of the year, and the Wildlife Trust's Otter Intensive Care Unit has been looking after three youngsters whose parents were presumably killed on roads – two from St David's and a single cub from Welshpool. Similarly two cubs found by a road near Ruthin, north-east Wales (mother presumed killed by a car) have been reared for a year in captivity by the RSPCA and are being released back in the wild. Another pair of otters entered a garden in the heart of Bangor, some distance from the nearest wetland. Sadly, one died and a post-mortem showed a bruised leg, indicating a hit by a car.

As I write, bats are becoming more active as the temperature warms. In Brecknock, over the winter, monitoring of lesser horseshoe bats in caves showed increased numbers. Mynydd Llangatwg (National Nature Reserve, SSSI, candidate Special Area for Conservation) had well over 400; the highest number ever recorded in one cave.

Martin Bailey, working for the Anglesey Red Squirrel Project, often phones in with interesting mammal records. Recently he reported several sightings of fallow deer in the Llangefni and Brynteg areas. Wales Deer Initiative, told me that the populations of fallow, red, roe and muntjac are all increasing in Wales, and it is becoming ever more important that deer presence is monitored. WDI are calling for co-ordinated deer management plans over specified local areas. Please contact Jackie Brinton on 01558/824530 or walesdeer@aol.com to report deer sightings.

Welsh mammal conservation was given a boost when **The Mammal Society Conference** was held in April at the University of Wales, Swansea.

On the first day, there were four excellent talks about Welsh mammals: Dai Jermyn, filled in many gaps in his recent survey of dormice; Dan Forman's excellent radio-tracking study of water voles revealed much about what they do away from the water; Craig Shuttleworth described how you can get rid of grey squirrels for the benefit of reds, and Peter Evans showed the results of his survey of habitat use by bottle-nosed dolphins in Cardigan Bay. The next day, the Conference went international. Topics included the introduced European hare in south Australia, egg-eating cattle (with video evidence!!), the latest news on the highly endangered Ethiopian wolf and the associations between carnivores and habitat in east and south Africa.

The final business of the conference saw the awarding of **BBC Wildlife Magazine**'s prize for best student paper to Lincoln Garland for his talk *Small mammal life along the fast lane* and the **Merlin** prize for best poster to Craig Brakes for his entry *Red Kites and rodenticides: identifying routes of exposure.*

Frances Cattanach, North Wales Wildlife Trust (01248 351541). (Thanks to Andrew Kitchener and the Mammal Society for conference report)

Natur y byd

Minc – yn mis Mai, bu Rob Strachan yn cynnal sesiwn hyfforddi am adnabod olion minc er mwyn i bobl leol ddeall yn well sut y mae'r creadur hwn yn parhau i ledu trwy ogledd-orllewin Cymru.

TB – tra bod ffermwyr yn pryderu am TB Mewn Gwartheg, mae cadwraethwyr yn pryderu y bydd moch daear yn diodde' o'r afiechyd, o reolaeth gyfreithiol neu erledigaeth.

Dyfrgwn – cynhaliwyd 160 post mortem ar ddyfrgwn gan Brifysgol Caerdydd y llynedd. Os gwelwch ddyfrgi marw, cysylltwch â'ch Ymddiriedolaeth Fyd Natur leol neu Asiantaeth yr Amgylchedd. Ceir sy'n lladd llawer ohonyn nhw.

Roedd cynnydd yn niferoed yr ystlum trwyn pedol leiaf mewn ogofâu yn Sir Frycheiniog tra bod pedwar math o garw ar gynnydd trwy Gymru.

Roedd Cynhadledd y Gymdeithas Famaliaid yn Abertawe yn llwyddiant mawr gyda sgyrsiau am y pathew, y llygoden ddŵr, gwiwerod a dolffiniaid ymhlith eraill.

Biodiversity *News*

Julia Korn, Wales Biodiversity Group, and **Stuart Bond**, WWF, report on the **Wales and the World Conference** held in Cardiff in April, as a preparation for the Johannesburg Earth Summit in September.

How often do you get over 400 people representing the full spectrum of civil, communal and political life in Wales in one venue speaking with one voice? The Conference, which had the feel of an international event, provided a unique opportunity for the people of Wales to influence the discussions and contribute to the outcomes of the **World Summit on Sustainable Development 2002**, being held in Johannesburg later this year. It gained strong support from both the First Minister Rhodri Morgan and the Minister for the Environment Sue Essex, who said that this inclusive process was both "desirable and essential".

The message was clear: Wales is in a position to lead the world through its responsibility for sustainable development. It is doing this by promoting sustainable development in all its functions. The enthusiasm and diversity of the contributing organisations – in the public, private and voluntary sectors – enhanced the message further; that Wales is a leading light on the global stage in sustainable development. Co-hosted by the National Assembly, WWF Cymru and Oxfam Cymru, Cardiff City Hall came alive with an infectious buzz and an almost festival like atmosphere.

Rhodri Morgan launched the **Ecological Footprint of Wales Indicator**, which addresses the most basic question of sustainable development: how much nature do we have, compared with how much we use? At present our global footprint equates to 5.25 hectares per person in Wales, but we need to reduce our share to the 1.9 hectares average, which is all that would be available in a fair share world. This could be achieved by linking the conservation of biological resources, heritage and culture to the economy and the quality of life.

Wales can and should make a difference globally, the conference heard; we are making the right connections on the ground, but better understanding and awareness is needed, especially among those with the power to drive change. Wales can show the way to other nations and expand upon its environmental and ethical stance. This will involve setting challenging targets to address core issues such as poverty, resource consumption, climate change, toxic pollution and waste.

As a mark of his commitment, Rhodri Morgan announced that he would be attending the World Summit on Sustainable Development in Johannesburg in September. Wales is the only country so far to adopt the 'ecological footprint' as a measure of real progress towards sustainable development; so Rhodri could give a clarion call to all other nations to do likewise. Then the real work can begin.

Wales Biodiversity Week

From **Aug 26th to September 1st** the Wales Biodiversity Group is hosting the above to promote the work of Local Biodiversity Action groups.

Events planned include up to 8 Local Biodiversity Action Plan launches, walks, stalls and the opening of a nature reserve.

The dates have been chosen to link with the Earth Summit 2002 in Johannesburg allowing us to focus on local action while World Leaders focus on global action.

The objectives of the week are:

- To raise the political profile of biodiversity in Wales and show what is happening locally
- To encourage familiarity with the term biodiversity
- To increase public awareness of the importance of, threats to and vulnerability of Wales's biodiversity resource among visitors and local people
- To demonstrate how action at a local level contributes to global commitments to biodiversity conservation

If anyone wants further details about this or wishes to get involved please contact me **Julia Korn**.
j.korn@ccw.gov.uk tel 01248 385793.

Newyddion Bioamrywiaeth

Mae Cymru mewn sefyllfa i arwain y byd trwy ei chyfrifoldeb dros ddatblygu cynaliadwy – dyna'r neges unfryd o **Gynhadledd Cymru a'r Byd** i baratoi at Uwchgynhadledd y Ddaear. Roedd 400 o gynrychiolwyr brwdfrydig o bob maes yn y gynhadledd lle lansiodd Rhodri Morgan 'ôl troed Ecolegol Cymru' sy'n dangos fod rhaid gostwng ein defnydd o adnoddau natur bron draean i sicrhau byd teg. Cymru yw'r wlad gyntaf i fabwysiadu'r mesur hwn. Gall Cymru arwain ymhellach ond bydd angen gosod targedau heriol o ran tlodi, defnydd o adnoddau, newid hinsawdd, llygredd a gwastraff. Yn Johannesburg, gall Rhodri Morgan ddeffro gweddill y byd.

• Bydd **Wythnos Bioamrywiaeth Cymru** rhwng Awst 26 a Medi 1, gydag 8 Cynllun Gweithredu Lleol ar Fioamrywiaeth yn cael eu lansio gyda llawer o weithgareddau eraill. Y nod yw codi ymwybyddiaeth, tynnu sylw at bwysigrwydd bioamrywiaeth Cymru – a'r peryg iddo – a dangos sut y gall gweithredu lleol gyfrannu at ymrwymiadau byd-eang.

Natur *mewn gwarchodfeydd*

Hafod Garegog gan **Dewi Clwyd Roberts**
Warden Cynorthwyol, Coedydd Maentwrog

Mae Gwarchodfa Natur Hafod Garegog, yn ardal Dwyfor, tuag un cilomedr i'r de o bentref Nantmor a dwy gilomedr i'r gogledd o bentref Garreg. Mae hefyd yn rhan o Barc Cenedlaethol Eryri. Rheolir y warchodfa hon gan yr Ymddiriedolaeth Genedlaethol ar y cyd â Chyngor Cefn Gwlad Cymru.

Mae'r warchodfa 87 hectar yn gartref i amryw o blanhigion a chreuaduriad sy'n byw un ai yng nghoedlannau derw/bedw y safle, neu ar y rhostir gwlyb, asidaidd. Yn ystod misoedd yr haf mae'r warchodfa yn fwrlwm o fywyd gwyllt a phryfetach, ac yn werth ei gweld.

Dros y blynyddoedd mae poblogaeth un glöyn byw arbennig iawn, y glesyn serennog (*Plebejus argus*), wedi cael ei hastudio a'i monitro yn gyson a chyfareddwyd sawl ymwelydd ganddo. Bob haf rhwng Mehefin ac Awst cerddir y llinell drawslun er mwyn cael amcangyfrif o'r nifer o lesynnau serennog gwryw a benyw sydd yno a hefyd i nodi lle mae'r cynefinoedd addas ar eu cyfer. Mae'r glöyn byw prin yma yn dibynnu ar greigiau a phonciau gyda grug (*Calluna vulgaris*) arnynt. Gan fod y cynefinoedd yma yn brin ac yn cyfyngu'r gleslyn serennog i ardaloedd bychain o'r safle, dros y blynyddoedd mae camau wedi eu cymryd i hybu'r math yma o gynefin.

Yn 1997 un o'r camau cyntaf oedd cynyddu'r nifer o wartheg duon Cymreig oedd yn pori'r tir dros yr haf. Golygai hyn y byddai'r llystyfiant yn cael ei gadw i lawr yn sylweddol, yn enwedig y twmpathau o laswellt y gweunydd, *Molinia caerulea*. Hefyd, gyda'r cynnydd yn y nifer o wartheg y mae'r tir yn cael ei fathru gan greu ambell ddarn moel di-dyfiant sydd yn berffaith ar gyfer creu tyfiant newydd o rug, yn enwedig ar bonciau creigiog sych.

Cytunodd yr Ymddiriedolaeth Genedlaethol gyda'r Cyngor Cefn Gwlad mai'r gwaith nesaf oedd cymryd camau penodol i ehangu cynefin y glesyn serennog. Gan fod y glöyn byw yma yn gyndyn o hedfan yn bell, ac yn anaml yn hedfan dros unrhyw rwystr e.e., gwrychoedd, coed a.y.y.b., penderfynwyd torri rhan fechan o goedlan fedw oedd ar y pryd yn rhwystro'r glesyn rhag mudo o un safle i'r llall. Torrwyd y coed bedw yng ngaeafau 1999 a 2000 er mwyn creu llwybr i'r glesyn i ymestyn ei diriogaeth ac i chwyddo'r boblogaeth. Gyda'r gwaith o dorri'r coed bedw wedi dod i ben, a'r tir wedi ei bori'n fyr, daeth cyfle i hau hadau *Calluna vulgaris*. Casglwyd yr hadau grug yng nghyffiniau Hafod Garegog a'u cludo'n ôl i'r swyddfa. Tra'n eu sychu yn yr adeilad rhaid oedd mynd trwy'r broses o wahanu'r hadau bychain oddi wrth y codynnau. Treuliwyd sawl awr yn rhwbio'r codynnau yn drwyadl rhwng y dwylo er mwyn rhyddhau'r hadau. Yna, ar ddiwrnod sych heulog aeth rhai o staff Cyngor Cefn Gwlad Cymru i'r warchodfa i wasgaru'r hadau bychain mewn gobaith y byddai tyfiant ifanc yn egino drwy'r pridd ymhen dwy neu dair blynedd.

Er hyn, mae digon i'w wneud dros y blynyddoedd i ddod i gadw'r safle'n addas ar gyfer y glesyn serennog. Mi fydd angen monitro dwysedd y pori gan y gwartheg a'r defaid i sicrhau bod y grug ifanc yn ffynnu. Hefyd, mae rhaid rheoli tyfiant eithin mewn rhai mannau, yn ogystal â bedw ifanc, rhag iddynt gysgodi'r grug sydd mor angenrheidiol i'r glöyn byw.

Os bydd y gwaith yn llwyddiannus fe ddylai poblogaeth y glöyn byw prin hwn chwyddo'n sylweddol a sicrhau fod Gwarchodfa Natur Hafod Garegog yn gartref iddo am flynyddoedd i ddod.

Y glesyn serennog.

Nature in Reserve

Dewi Clwyd Roberts, Assistant Warden Coedydd Maentwrog National Nature Reserves, describes the methods used by both the National Trust and the Countryside Council for Wales to increase the isolated habitats of silver-studded blue butterfly at Hafod Garegog NNR. Recently the grazing has been adjusted, trees were selectively felled and heather seed sown to create the conditions for this unique butterfly.

Marine *matters*

Sea Life Survey 2002 by **Sally Bailey**

The marine natural resources of Wales are extremely important and varied. One of only three national Marine Nature Reserves in the UK can be found in Welsh waters – Skomer Island with its exceptional seabird colonies. Dolphins, porpoises, turtles and basking sharks can be spotted from Skomer and the surrounding islands. The region is equally important for the variety of its underwater wildlife, which supports some species which would not normally be recorded together – a result of the warm water of the Gulf Stream meeting colder Arctic waters.

The 1600 km of Welsh coastline has amazing examples of rocky outcrops, underwater cliffs and caves, rias (narrow river valleys flooded by the sea), large sandy bays and estuaries (including the highly dynamic Severn estuary), sea cliffs and sand dunes. Yet the results of careless human use of the coast were starkly illustrated when the super-tanker *Sea Empress* ran aground at the entrance of Milford Haven in 1996.

The importance of our seas cannot be over emphasised; in addition to their nature conservation value they represent an important part of our heritage and economy, providing us with food and jobs and a source of recreation. Pollution, overexploitation of fish stocks, development and mineral extraction, to name just a few, have led to unprecedented pressures on our precious marine life.

In order to understand more about the health of the seas, WWF has joined forces with MarLIN (The Marine Life Information Network for Britain and Ireland) to develop a national survey, running until autumn 2002. Information gained to date shows that many species and habitats are under threat, yet there are still large gaps in our knowledge. The survey is helping to raise awareness of the fascinating nature our seas and to build up a national picture of our marine wildlife, by encouraging a wide audience of marine users to report sightings. Decision-makers, scientists and educators rely on this picture to develop sustainable management practices.

In addition to looking at wildlife distribution and populations, the survey should shed light on the impacts of climate change. As the seas around the UK get warmer, the species found will change. Important information can be obtained by doing a simple rockpool ramble. Species such as the snakelocks anemone and the honeycomb worm (so called because of the 'honeycomb' pattern of their colonies on rocks) are expected to advance northwards with warmer sea temperatures. By contrast the common tortoiseshell limpet, recorded north of a line between Dublin and Anglesey, will probably retreat to colder waters – we need to know if this is the case.

The survey includes 34 species of plants and animals from the coast to the seabed (some may be found both on the shoreline and underwater):

Free Swimmers	Shoreline	Underwater
basking shark	common mussel	common starfish
bottlenose dolphin	common starfish	crawfish (or spiny lobster)
harbour porpoise	common tortoiseshell limpet	edible crab
leatherback turtle	dog whelk	eel grass
orca	goldsinny	football sea squirt
smallspotted catshark	great pipefish	Goldsinny
sunfish	honeycomb worm	great pipefish
trigger fish	peacock's tail	lumpsucker
	purple sea urchin	maerl
	shore clingfish	northern sea fan
	snakelocks anemone	parasitic anemone
	velvet swimming crab	penny weed
	wire weed	pink sea fan
		rock cook
		snakelocks anemone
		sunset cup coral
		tube worms
		velvet swimming crab
		wire weed

- Details of the survey can be found on www.marlin.ac.uk/sealifesurvey
- A colour, waterproof species identification sheet can be obtained by calling the Sea Life Survey hotline 0845 121 0500.

Sally Bailey is Campaigns Co-ordinator for WWF Cymru.

Materion Morol

Mae Arolwg Bywyd Môr 2002 am ddarganfod rhagor am gyfoeth rhyfeddol dyfroedd a glannau Cymru. Mae eisoes wedi dangos fod sawl rhywogaeth a chynefin mewn peryg ond mae llawer i'w ddysgu eto am gyflwr amgylchedd y môr. Bydd yr arolwg, gan WWF Cymru a MarLIN, yn help i godi ymwybyddiaeth ac arwain polisi, tra'n dangos rhagor am effeithiau newid hinsawdd.

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Butterfly Guardians looking for thrift clearwing moth larvae

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